

MOTOR AGE

RACING A FEATURE AT ATLANTIC CITY



ATLANTIC CITY, N. J., Aug. 5
—The 3-days' race meet which is the opening feature of the Atlantic City motor carnival week began at Ventnor beach today with the course in fair condition and little wind to either aid or hinder the drivers. It has been customary at former tournaments to run the races in the afternoon. The Atlantic City residents and visitors did not seem to very generally know that this year there had been a change of time to the morning. In consequence not more than 2,000 spectators were in the big stand during the races and hundreds were beginning to arrive when the contests closed at a few minutes before noon, eight events and a match race having been run off by Fred J. Wagner, the starter, within 2 hours.

There were three noteworthy features of today's racing. In the first place the Stearns cars were victorious in every event in which they were entered. Secondly the referee, Duncan Curry, ruled out all the cars but the two finishers in the touring car championship for cars of 60 horsepower or less, fully equipped, carrying five passengers, for not fulfilling equipment requirements. Last and most sensational of all was the protest of Harry S. Houpt, owner of a competing Thomas Forty, against the winner of the regularly

equipped runabout race and the second car also for lacking the equipment required by the conditions named in the entry blank.

This last named race was won by the six-cylinder Stearns, which has been victorious in the Cleveland, Fort George and other hill-climbs and was a post entry. Houpt's protest against it was that it has no muffler and no exhaust. The protest against A. W. Church's Stearns, driven by Guy Vaughan, was that it was shy a running board, sprocket covers and one mudguard and was fitted with a light hood. In a word, that it was a mere chassis rigged up to approach a stock body.

"I left behind in my garage," said Mr. Houpt, "my 60-horsepower car because it did not fulfill entry requirements and took a Thomas Flyer and a Thomas Forty right out of stock and brought them down so as to comply strictly with the rules. When I saw what I was up against I withdrew the Flyer and sold it to Frank Porth, of Philadelphia."

The fastest time of the day was scored by Frank Leland in the six-cylinder Stearns, which covered the mile in 52 seconds. The second best time, 53½ seconds, was credited to a Stanley steamer piloted by D. Walter Harper. The Stearns crowd on its own hook had started the protesting bee by a protest against the action of the referee in barring its machines from the touring car championship for improper and insufficient equipment.

All races were at a mile and were run from south to north. The beach had 200 feet of width available for racing. Summary:

Gasoline touring cars selling at \$3,000 or less, regularly equipped, carrying five passengers—T. W. Berger, 35-horsepower Oldsmobile, won; Charles W. Hoffman, 30-horsepower Pope-Hartford, second; E. L. Leinbach, 30-horsepower Stoddard-Dayton, third; Charles

Fleming, 14-horsepower Maxwell, fourth. Time, 1:15.

Gasoline runabouts selling at \$1,200 or less, regularly equipped—Charles Fleming, 14-horsepower Maxwell, won; Thomas Weekie, 22-horsepower Buick, second. Time, 1:32 4-5.

Touring car championship for Atlantic City bureau of information cup for touring cars of 60 horsepower or less, regularly equipped, carrying five passengers—F. H. Hancock, 50-horsepower Stevens-Duryea, won; Frank Lescault, 50-horsepower Matheson, second. Time, 1:06 3-5.

Gasoline runabouts, regularly equipped, old types and prices—Frank Leland, 45-horsepower Stearns, won; Guy Vaughan, 30-horsepower Stearns, second; William McIlvrid, 40-horsepower Thomas, third; William Coyle, 30-horsepower Stearns, fourth. Leland subsequently disqualified and the cars were moved up in order.

Touring cars selling at \$5,000 or less, regularly equipped—Guy Vaughan, 30-horsepower Stearns, won; C. Schilt, 30-horsepower Stearns, second; John Davenport, 30-horsepower Stearns, third; C. W. Hoffman, 30-horsepower Pope-Hartford, fourth. Time, 1:01 1-5.

Steam cars, free-for-all—D. Walter Harper, 25-horsepower Stanley, won. Time, :53 2-5.

Gasoline touring cars selling at \$3,000 or less, regularly equipped—T. W. Berger, 35-horsepower Oldsmobile, won; E. L. Leinbach, 30-horsepower Stoddard-Dayton, second; Charles Fleming, 14-horsepower Maxwell, third; C. W. Hoffman, 30-horsepower Pope-Hartford, fourth. Time, 1:14.

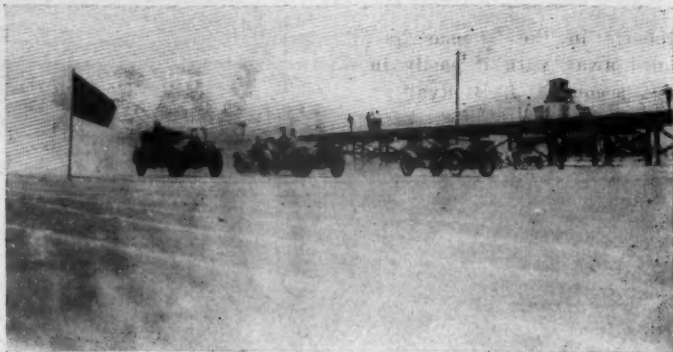
Foreign cars—Harry Levey, 60-horsepower Mercedes, won; L. R. Burne, 50-horsepower Rolls-Royce, second. Time, 1:15 3-5.

Special four-cornered match, \$50 a side—Guy Vaughan, 30-horsepower Stearns, won; F. N. Lawrence, 30-horsepower B. L. M., second; L. R. Burne, 50-horsepower Rolls-Royce, third; John Barr, 60-horsepower Mercedes, fourth. Time, :57 2-5.

It was midnight before the referee and the race committee reached a decision in the matter of the protest of William McIlvrid against the two Stearns cars which finished first and second in the roadster race. The winner, the six-cylinder driven by Frank Leland, was disqualified for having no muffler. A. W. Church's four-cylinder car was ruled as coming within the rules, the conditions being fulfilled because the mudguard was broken and carried in the car. This gives first place to A. W. Church's Stearns, driven by Guy Vaughan, and second place to McIlvrid in the Thomas Forty. A Stearns catalogue



MOTOR CLANS GATHERING AT ATLANTIC CITY



START OF FIRST RACE ON MONDAY

was produced showing a light touring car equipped as was Church's car.

The racing will be brought to a conclusion Wednesday with record trials and several races. In the afternoon there will be a floral parade on the board walk; on Thursday the show at Young's million-dollar pier will open and continue throughout the week.

Fast Work the Second Day

Atlantic City, N. J., Aug. 6—Special telegram—In the whole series of Atlantic City beach tournaments there has been no better racing from a competitive standpoint as regards prompt and efficient management and in the matter of a large attendance of enthusiastic spectators than marked the second day of the speed contests on Ventnor beach. There is danger that the present may be the last of the beach meets, for the board walk has now reached close to the present course and is being extended rapidly southward. It is said, however, that the local motorists and hotel keepers, have in contemplation building for next year near Ventnor beach a kite-shaped 1½-mile cement track for the holding of future tournaments. These have been growing each time in popularity with the racing and trade contingent of New York, Philadelphia and New Jersey.

Atlantic Cityans and summer residents worked up to a realization today that the races were run in the morning and not in the afternoon and when Wagner's pistol sent off the first bunch of racers at 10 minutes to 11 o'clock there were fully 5,000 spectators on the grand stand and half as many more perched on the sand. Thirty or forty cars stretched north along the course from the judges' stand around which were clustered a hundred or more well-known tradesmen and familiar race-followers. All was cordiality and good fellowship once more, the diplomacy and justice of Referee Curry and his advisers having swept away the ill-tempered clouds by last night's decision on the slightest protests. There was close and interesting racing in all the contests and the two handicaps brought out the biggest fields yet competing on the

beach. The course was soft for the first third of the way toward the finish post. When the racers emerged from the soft into the firmer going they appeared to have made a sudden spurt. Although the 35 seconds mile of Walter Christie last year and the 38 seconds of the Darracq of the year before were not equaled and hardly approached the 120-horsepower Thomas, one of the Vanderbilt cup trio, scored 40% seconds, with the six-cylinder Stearns a good second with a showing of 41% seconds, both most excellent performances.

There were six aspirants for the free-for-all prizes. Two of them were Vanderbilt cup candidates last year—the 120-horsepower Thomas and the 85-horsepower B. L. M. Two were six-cylinder cars of the new model of 1908—a Stearns and a Stevens-Duryea. Against this formidable quartet were pitted an 85-horsepower Matheson and a 60-horsepower Mercedes.

Summary of events:

Gasoline touring cars, \$1,500 or less—W. J. Hayes, 20-horsepower Jackson, won; Edward Wilkie, 12-horsepower Buick, second. Time, 1:26 3-5.

Price handicap, touring cars carrying five passengers, handicaps 1 second for each \$200—T. W. Berger, 35-horsepower Oldsmobile, scratch, won; E. L. Leinbach, 30-horsepower Stoddard-Dayton, 1 second, second; Chester Smith, 24-horsepower Jackson, 2¼ seconds, third; Charles Fleming, Maxwell, fourth. Time, 1:32.

Free-for-all championship, first heat—Montague Roberts, 120-horsepower Thomas, won; F. W. Leland, six-cylinder, 45-horsepower Stearns, second; Charles Lawrence, 85-horsepower B. L. M., third. Time, :42 3-5; time of second car, :43 1-5.

Second heat—P. J. Robinson, six-cylinder, 50-horsepower Stevens-Duryea, won; J. B. Ryall, 90-horsepower Matheson, second; John Barre, 28-32-horsepower Mercedes, third. Time, :50 1-5.

Final heat—Roberts won; Leland, second; Robinson, third. Time of winner, :40 2-5; time of second, :41 4-5.

Handicap for roadsters, \$5,000 to \$2,500, handicap 1 second for each \$200—William Mc-

Ilvird, 40-horsepower Thomas, 10 seconds, won; E. L. Leinbach, 30-horsepower Stoddard-Dayton, 9 seconds, second; Frank Lawrence, 30-horsepower B. L. M., 5 seconds, third; A. J. Picard, 30-horsepower Stearns, 2 seconds, fourth. Time, 1:11 3-5.

Handicap for cars which had made 1:10 or better—Frank Leland, six-cylinder, 45-horsepower Stearns, 7 seconds, won; D. W. Harper, 25-horsepower Stanley, 4 seconds, second; Frank Lescault, 30-horsepower Matheson, 13 seconds, third; William McIlvird, 40-horsepower Thomas, 11 seconds, fourth. Time, 1:07 2-5.

John H. Lyons cup for American touring cars of 30 horsepower and under, carrying five passengers—T. W. Berger, 30-horsepower Oldsmobile, won; P. F. Rockette, 30-horsepower Stoddard-Dayton, second; Charles Fleming, 24-horsepower Maxwell, third. Time, 1:14 1-5.

Mile in 39% Seconds by Thomas

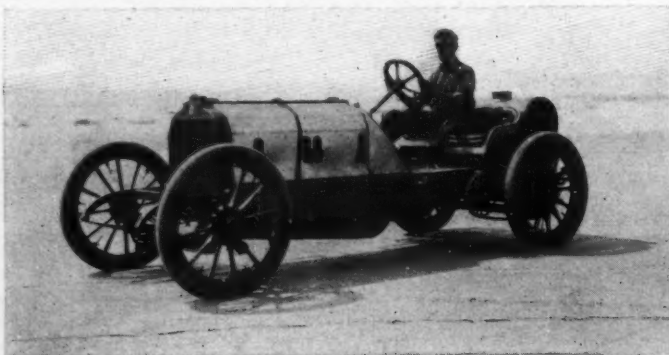
Atlantic City, N. J., Aug. 7—Special telegram—The racing part of carnival week was brought to a close early this afternoon with a program made up of mainly overnight events, impromptu matches and several noteworthy trials against time, in which excellent figures were scored, considering the fact that the beach was soft and the course ended in pools of water just after the finish line was crossed.

Today Montague Roberts drove the 120-horsepower Thomas in 39% seconds and Charles Lawrence piloted the 85-horsepower B. L. M. in 44% seconds, which must have equaled miles in at least 3 seconds faster under the former more favorable surface conditions.

The record trials which wound up the sport were confined to four cars, two built for the Vanderbilt cup race, and a Stanley steamer. Of course it is mere guesswork to attempt to estimate just how slow the beach was today as compared with its condition when last year Waller Christie made his 35 seconds mile over it, and the year before Hemery's Vanderbilt

Darracq and Charley Schroeder's 80-horsepower Darracq scored miles in 38 seconds. D. W. Harper in a Stanley steamer showed a mile in 51% seconds, and William Coyle drove Frank Porth's Thomas Flyer with its bulky owner aboard over the course in 59% seconds with great ease, very good going.

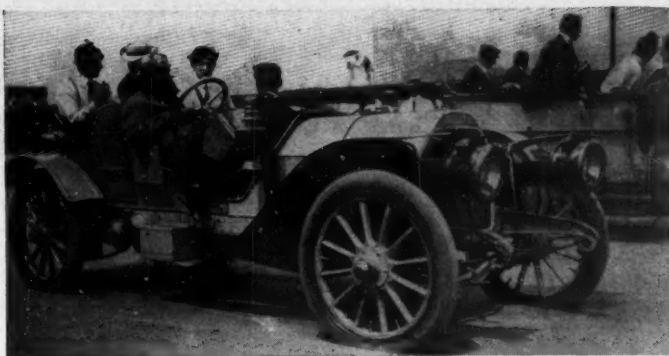
Really the only regular programmed event was the free-for-all race for stripped cars of American manufacture.



B. L. M. RACER, BUILT FOR 1906 VANDERBILT CUP EVENT

Roberts in the Thomas galloped away with it easily in 50½ seconds. J. B. Ryall in a 60-horsepower Matheson led the others, who finished in the order named; D. W. Harper, Stanley; Frank Lescault, 60-horsepower Matheson; William Coyle, 60-horsepower Thomas.

Next came a special event for Stoddard - Daytons, in which the time was 1 minute 14 seconds, and the order of finish was: H. J. Edwards, A. H. Whiting, Gilbert H. Smith and R. L. Newton. A whole bunch of match races followed. William Mellvird, 40-horsepower Thomas, beat a Mercedes of the vintage of 1902 in 1 minute 11½ seconds. Stewart Elliott in a Packard Thirty won handily from Kelsey in a Matheson in 1 minute 9½ seconds. A triangular match had the following order of finish: Guy Vaughan, Stearns; D. W. Harper, Stanley; William



GUY VAUGHAN IN THE STEARNS AT ATLANTIC CITY

Coyle, Thomas. The time for this contest was 54½ seconds.

Two Stearns touring cars driven by Guy Vaughan and O. W. Hoffman ran a dead-head in 1 minute 5½ seconds, beating an Oldsmobile, piloted by T. W. Berger, 40 yards. In another match race William Coyle, Thomas Sixty, beat Stewart Elliott, Packard, ¾-second in 1 minute 9½ seconds for the mile.

The getaway race of the meet was a handicap. Eight cars competed and made a noisy scramble of it. Guy Vaughan won from scratch in 1 minute 5½ seconds actual time from a standing start, followed in order by R. G. Kelsey, Matheson, 12 seconds; Coyle, Thomas Flyer, 9 seconds; William Mellvird, Thomas Forty, 11 seconds; T. W. Berger, Oldsmobile, 11 seconds; Stewart Elliott, Packard, 9 seconds.

In the afternoon there was a parade of flower-decked cars along Pacific avenue. When the dancing ended tonight on Young's million dollar pier the decorators took the ballroom in hand and workmen began to move in the cars for the 3 days' show, which opens tomorrow. Already the makers of the Motor and Accessory Association, which is to have a 2 days' meeting, starting Friday, are arriving.

STEARNS THE STAR IN FORT GEORGE HILL-CLIMB

New York, Aug. 3—A bunch of live wires headed by the silver-tongued Thomas Francis Moore and made up mainly of other members of the Wyckoff, Church & Partridge outfit relieved the mid-summer dullness by promoting and running to quite a successful conclusion today a free-for-all climb up Fort George hill.

Fort George hill is a favorite trying-out ground for demonstrators seeking to show the grade-conquering merits of their cars. It is a rise of 1,900 feet with a grade of 10 per cent, reaching perhaps 15 per cent in a spot or two. The surface is of Belgian block and the hill has three rather sharp turns. Altogether it is a short, sharp climb of considerable difficulty.

Twenty-nine cars completed the ascent, each being given two trials. Most excellent time was scored; for it must be remembered that the climbs were made with a short start of but 150 feet. It had been intended to have a longer start, but A. Poole in making a preliminary practice ascent with a Simplex came to considerable grief through skidding and hitting an elevated railroad post, his car being badly battered. Then it was that A. R.

Pardington, the referee, and Fred Wagner, the starter, thought best to shorten the take-off.

Charley Dieges and George Hughes, of the Timers' Club of New York, were on hand with an electric timing apparatus, but it went wrong and the times had to be reckoned from a comparison of the watches of Hughes at the start and Dieges at the finish.

The Wyckoff, Church & Partridge coterie did not promote the climb in vain, for the Stearns carried off the lion's share of the honors, winning class A for the big cars with the six-cylinder that had beaten all the gasoline cars at the Cleveland hill-climb in the best time of the day, and running away with the first four places in the next class below. The left-over laurels were divided between the Stevens-Duryea and a Pope-Hartford, which were the respective winners of class C and class D.

The classification was on the basis of the square of the bore multiplied by the number of cylinders, the same as will be used by the Chicago Motor Club Friday.

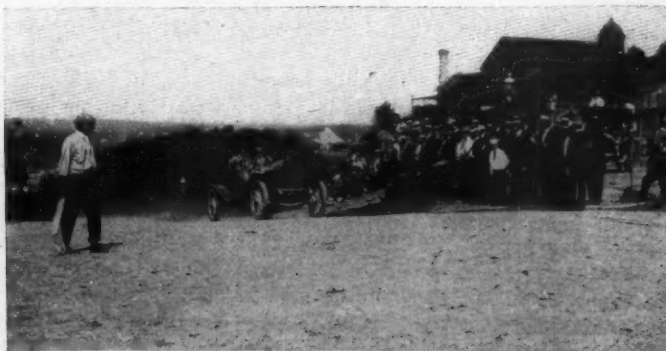
The climb, according to the program, was promoted by the Metropolitan Auto-

mobile Association, a temporary name chosen by the coterie back of it. Summary of the event:

Class A, over 125 inches piston area:			Time,
Car	Bore	Driver	Sec.
Stearns	5 3-8	Frank Leland	28 1-5
De Dietrich	5 1-9	W. Manna	40 1-5
Simplex	5 7-8	A. Poole	43 4-5
Blanchi	5 9-10	N. N. Howell	44 4-5
Class B, 100 and under 125:			
Stearns	5 3-8	C. Schuppe	32 2-5
Stearns	5 3-8	A. J. Picard	35 2-5
Stearns	5 3-8	W. J. Pickling	38 1-5
Stearns	5 3-8	W. A. Tiet	39
Packard	5	E. Elsmann	41 3-5
Blanchi	5 1-9	L. G. Young	44 1-5
Crawford	5	R. S. Crawford	44 4-5
Stearns	5 3-8	M. Warner	45 1-5
Isotta	130m.	A. Poole	46 4-5
Matheson			47 2-5
De Dietrich	5 1-4	W. Allen	49 4-5
Class C, 80 and under 100:			
Stevens-Duryea	3 7-8	J. P. Robinson	36 1-5
Pennsylvania	4 1-2	R. T. Peckham	41 1-5
Clement-B.	120m.	H. A. Van Tine	41 2-5
Franklin	4 7-8	Dr. Stinson	44 3-5
Pope-Toledo	4 1-8	Joe Judge	45
Stoddard-D.	4 5-8	B. F. Dawson	48
Pope-Toledo	4 1-8		49 1-5
Class D, 60 and under 80:			
Pope-Hartford	4 1-8		30 2-5
Corbin	4 1-4		39 3-5
Pope-Hartford	4 1-8	Joe Judge	48 4-5
Electric class:			
Babcock			1:57 4-5
Special Stearns race for W. C. P. cup:			
Stearns	5 3-8		44 4-5
Stearns	5 3-8		45 4-5
Stearns	5 3-8		48 4-5
*Handicapped 10 seconds; actual time,			
38 4-5 seconds.			



GENERAL VIEW OF FORT GEORGE HILL



DE DIETRICH CLIMBING FORT GEORGE HILL

FAVOR ALCOHOL AS SUBSTITUTE

Members of Motor Union Committee Investigate Gasoline Proposition and Make Recommendations that Active Steps Be Taken To Find Some Other Engine Fuel

London, July 25—The issue of the report of the special committee appointed by the Motor Union to consider the whole question of fuel for the internal combustion engine is one of the chief events of the week. It is a most comprehensive document, dealing statistically, scientifically and commercially with the whole subject. Briefly put, the recommendation of the committee is that active steps be taken to ascertain the readiest methods of developing the use of alcohol as a substitute for gasoline and to take steps to have the fiscal restrictions appertaining to its commercial use modified so as to bring it as a fuel into a competitive plane with gasoline. It is recommended that the Royal Automobile Club should institute important experiments on the comparative merits of gasoline and alcohol as fuels, that a prize should be offered for the best essay on the subject of the manufacture and production of alcohol as a cheap fuel and also that a competition for paraffin carbureters should be organized so as to aid in the development of oil fuel. In the report itself it is pointed out "that the supply from the United States of petroleum spirit into Great Britain in 1905 was 10,500,000 gallons, out of a total of 18,500,000 imported into this country. During the

last 6 months the importation of petroleum spirit from the United States has fallen to 2,500,000 gallons. We may, therefore, assume that the importation for the present year from the United States will not be more than 5,000,000 gallons; in fact, as the rate of import from that country is still falling, probably less. This means that the quantity imported into this country from what was at one time not only its most important but approximately its only source of supply has fallen in 2 years to half its original quantity. Of course, the total quantity used in this country is greater, the deficit from the United States being more than met by the increased supply from the East Indies, but there is no reason whatever to think that the supply from the East Indies is inexhaustible, or may not be attracted to other markets, especially in view of the fact that it is derived from a part of the world

much farther away from this country. To show that the drop above quoted is not an accidental one, it must be pointed out that last year the imports were approximately 8,000,000 gallons, this representing a fall in the ratio of 8.5 as compared with the year before, or no less than 60 per cent."

The committee was evidently impressed with the conviction that in the comparatively near future the principal source of gasoline supply will be worked out. It states that "owing to the gradual depletion of the Pennsylvania oil beds, which have been so largely worked for so many years, the supplies from this region are rapidly decreasing, and the new fields in the gulf states and California are handicapped by



PARIS-PEKIN RACE—CONTESTANTS DINING IN DESERT OF GORI

the greater distance over which their products have to be sent. These facts, combined with the increased home consumption in the United States, no doubt account for the fact that whereas the United States in 1904 supplied 50 per cent of our gasoline, in 1906 this proportion had decreased to 30 per cent, while in the last half of 1907 it had still further decreased to less than 20 per cent of the total amount of gasoline imported. Fortunately, owing to new fields in the east, of which the crude oil contains a very large proportion of suitable spirit, the imports into the United Kingdom from the eastern fields have increased from 37 per cent to 61 per cent during the two years, 1904-6, i. e., from 4,500,000 to 16,500,000 gallons, while for the present year, 1907, gasoline is being imported at the rate of over 20,000,000 gallons annually. The imports from other countries are at present insignificant,

amounting altogether to less than 10 per cent of our consumption, and there is no evidence that any important increase can be anticipated, either from these fields or from those more lately discovered in Australia, West Africa, Mexico, Peru and Trinidad, such as would materially modify the situation, although the committee is informed that considerable shipments may be expected in the future from the Peruvian and Mexican fields. It must be pointed out, however, that if the supply from these sources were to increase even to a large extent the whole of the additional supplies would probably be absorbed either by those countries themselves or by countries in the immediate neighborhood, such as the United States in the case of Peru."

Apparently the only witness examined who took a cheerful view of the future in this matter was Dr. P. Dvorkovitz, the editor of the Petroleum Review. Dr. Dvorkovitz in his evidence before the fuels committee on November 30, 1906, stated: "There are no signs of a possible

falling off in the supply, say, during the next generation or two. On the contrary, there is every sign of an increasing production of crude oil that will keep pace with any demand made upon it. In fact, since the publication of my article new fields have been opened which produce at least 10,000,000 tons of crude oil per annum—that is to say, an increase in 9 months of 33½ per cent, which, I should think, is considerably greater than the increase in demand."

Some people are inclined to consider that the scare of a fuel famine is being deliberately fomented in order to

justify the ever increasing price of gasoline, as seen from the following table:

	Price of motor spirit in cans and cases to the retail agent	Price usually charged to the consumer
Nov. 1904...	\$0.14 per gallon	\$0.20 per gallon
Nov. 20, 1905.	0.16 per gallon	0.22 per gallon
Jan. 19, 1906.	0.18 per gallon	0.24 per gallon
Feb. 21, 1906.	0.19 per gallon	0.25 per gallon
May 3, 1906..	0.20 per gallon	0.26 per gallon
Aug. 2, 1906.	0.24 per gallon	0.30 per gallon
Dec. 24, 1906.	0.26 per gallon	0.32 per gallon

Not the least remarkable feature of the report is the manner in which the committee defined this gradual rise, although it is not shown that at any period the demand ever pushed the supply to close quarters. Indeed, at the present moment it has been found necessary by the two concerns that practically control our fuel supply—the Standard Oil Co. and the Shell Transport Company—to reduce the current price by 2 cents, as the wet season has not enabled British interests to keep pace with the supply. The entire motoring industry of the

United Kingdom has followed this investigation of the gasoline question by the Motor Union and the report of its committee has been eagerly read, for this fuel proposition is a most serious one on this side of the Atlantic. England perhaps is not as badly off as is France, where the prices are sky-high, particularly in Paris, where the owner of a motor car has to pay a tax if he buys his fuel inside the city.

OLD HOME WEEK AT HUB

Boston, Mass., Aug. 7—One of the big features of the Old Home week celebration in Boston last week was the motor parade and gymkhana games held on Thursday. The motorists turned out in goodly numbers and the visitors to Boston saw a lot of cars of every kind—steam, gasoline, electric, touring cars, runabouts, etc. After the parade the cars were lined up on the common where the sports were run off. The feature of the games was the appearance of Miss Eva Brunnell, of Worcester, a 13-year-old girl who competed against the most skillful drivers of Boston. She got second prize in the teeterboard contest, the most difficult feat of the program, and in the other events she acquitted herself very well. The prizes for the parade were silver cups and they were given to Mrs. J. H. Mac-Alman's Columbia for the best decorated car; to Mrs. J. A. Davis, of Amesbury, for the best woman driver; to J. S. Hathaway's White for the most grotesque make-up; to C. W. Wilson's Winton for the best appointed touring car, and to Arthur Adams' Oldsmobile as best runabout. The gymkhana events were won as follows:

Slow race on high gear—G. H. Kimball, Corbin, won; Arthur Adams, Oldsmobile, second.

Brake test—G. H. Kimball, Corbin, won; Arthur Adams, Oldsmobile, second.

Teeter board—Harry Murch, Cadillac, won; Miss Eva Brunnell, Jackson, second.

Obstacle race—Guy Green, Orient, won; Arthur Adams, Oldsmobile, second.

Twelve-mile-an-hour race—C. J. Pendleton, Carter Car, won; Alvin Williams, Aerocar, second.

Dressing race—G. H. Kimball, Corbin, won; Harry Murch, Cadillac, second.

INVASION IS POSTPONED

New York, Aug. 5—The American gold cup tour has been formally postponed by its promoter, Georges Dupuy, who declares that he intends to carry out his plans next year. His trip to Europe convinced him that there is no chance of such a tour proving a failure and he intends to try to put it through later. Dupuy intends returning to France and taking up his permanent residence in Paris in the future.

RACE A BELGIAN COUP

Minerva Cars Capture Four of Six Places in Ardennes Run Under Kaiserpreis Rules

Brussels, July 26—Belgium has held its annual speed contest over the classical Ardennes course and has come out victorious. A glance at the times made by the cars will prove how hotly the race was contested and how well merited the victory was. Out of six cars finishing the race four were the four Minerva cars entered. Moreover the first three were Minerva cars driven by Brabazon, Koolhoven and Guinness, respectively. The race was really between the German and the Belgian cars, ten of one and eleven of the other, and the results show that Germany was not in the running.

The race was held on the formula adopted for the emperor's cup, and was raced

It was obviously anybody's race at this time. On the fourth lap the six first arrivals were the final victors on the seventh round and, strangely enough, in almost the same order, the only change being that Guinness fell to third place in the last round of the well-fought speed battle.

The story of the race is easily told, for it was fought between the Pipe cars and the Minerva, with a Benz to keep them at it. Hanriot was on the last mentioned. Jenatzy's Pipe overturned, as did several other cars, including all three Pipe cars. The race was quietly started and finished, and although well attended, did not attract the same amount of attention as did the Ardennes circuit of former years.

This year the event has been split into three classes, the kaiserpreis formula being used today. Tomorrow the Belgian formula will be tried. The grand prix formula will be raced by the Weigel and a Mercedes, the Lorraine-Dietrich and Bayard withdrawing at the last moment, as did also a Darracq, owing to the dearth of entries for the classic.

Only six cars finished the race today out of twenty-one starters. The pace of the winner was nearly 70 miles per hour, which is faster than Nazzaro's in the kaiserpreis, but this latter was over a harder circuit and in bad weather. It is of note that the first four cars finished within 2 minutes of each other, and the first six all within 15 minutes of one another. The best time for 100 kilometers was made by the Pipe car of Hautvast—56 minutes 19 seconds. The organization of the race was excellent, as is usual

for the Belgian Ardennes race, and the event was run off without a protest.

PRINCE REACHES BERLIN

New York, Aug. 5—An Associated Press cable from Berlin today says that Prince Scipione Borghese, the leading contestant in the Pekin-Paris race, which was started from the Chinese capital June 10, arrived there at 5 o'clock this afternoon. Four cars with a deputation of the Imperial Automobile Club and members of the Italian colony met the prince at Muencheberg, 40 miles east of Berlin, and escorted him to a hotel on Unter den Linden, where a crowd was in waiting to cheer his arrival. The prince immediately called for a bath and said he had intended to push on to Paris tomorrow morning, but had decided to accept an invitation to be present at a luncheon to be given in his honor by the Imperial Automobile Club at noon and a dinner to be given by the Italian colony.



OLD HOME WEEK IN BOSTON—PARADE IN TREMONT STREET

over seven laps of the Ardennes circuit, which is just 53 miles around. Some excellent time was made. The race was started at the early hour of 5 a. m. and departures were made every minute. Hautvast, in a Pipe, made the best time in the first lap, covering the 53 miles in 48 minutes 38 seconds. Jenatzy was a minute longer and Guinness 70 seconds longer. In the second round Guinness forged ahead and while second in the general classing, made the fastest lap in 48 minutes 18 seconds. The third lap Guinness made the record of the day for the lap, covering the 53 miles in a second less than 48 minutes.

On the third lap Guinness was first in the general classing, followed by Wilhelm in a Metallurgique, Hautvast in a Pipe, Brabazon in a Minerva, Jenatzy in a Pipe and Wright in a Minerva. The warm competition aroused great enthusiasm among the thousands of spectators on the course.

The Western News Company of Chicago
and Its Branches Supply Newsdealers
NH. Van Sicklen, Manager



MOTOR AGE

1200 Michigan Avenue, Chicago
Published Every Thursday by the Trade Press Company
Entered at the Chicago Postoffice as Second-Class Matter
New York Office 29 West Forty-Second Street

Subscription Two Dollars a Year, Foreign and
Canadian Subscription Four Dollars
Charles P. Roof, Editor



CONDUCTING COMMERCIAL TESTS



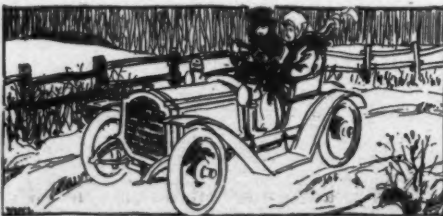
WITHIN the past few years there have been several contests wherein commercial motor cars have been pitted against one another in a more or less general effort to show what one could do as against the other and incidentally to demonstrate to the commercial world that the motor car is something that can take the place of the horse in the transportation of merchandise of one sort or another. These contests have been marked with little success and considerable failure; but the failure should not be charged entirely to the promoters nor to the contestants. As a matter of fact the time for holding such contests has not been ripe until now, at least so far as this country is concerned. The commercial proposition has been growing—slowly but steadily—and it is now occupying the attention of all the commercial world. The commercial world is anxious; it sees in the motor car something it has long needed—but it is not yet convinced that what is produced today is what will suit its purposes. Heretofore the makers of commercial cars have entered such contests as have been held with one object—advertisement—and that one attitude has been responsible for retarding that branch of the motor car industry rather than advancing it. Self-interests have been so paramount as to have been responsible for creating a spirit of selfishness that has not been the means of promoting the welfare of the commercial motor car makers individually or the industry as a class. The success of future commercial motor car contests and of that branch of the industry will lie in the endeavors of the trade to make demonstrations to the commercial world of what the commercial car can do for it as a means of transportation and not through showing that this or that particular car or truck can do something some other car cannot do. It is a case where individual selfish ends must not be considered; where the life of the trade and the industry as a whole shall be considered. This policy may not appeal at first to those who contemplate taking part in any contests that may be scheduled, but it will be found this is the shortest road to the heart of the merchant who wants something that will haul his goods quickly and economically. It is true some of those who enter the field at the eleventh hour will profit by the efforts of those who have given up time and money and brains in order to bring about success, but this has been true in all things and of all people. It is an-

nounced that during the week of the first commercial car show, to be held in conjunction with the regular Chicago show, there will be a series of tests for commercial cars and the promoters have already received much encouragement from makers of commercial cars. This week of test ought to be productive of much convincing argument in favor of the general use of motor-propelled vehicles as against horse-drawn vehicles—providing the spirit of selfishness that naturally exerts itself in the business world can be cast aside by the contestants and they endeavor, by their advice and through their efforts in other directions, to make the affair a success.

TIME TO DO SOMETHING



SINCE the American Automobile Association has rid itself of the burden of conducting its annual tour for the Glidden and Hower trophies—a tour that was more or less successful and more or less a failure—and since the organization has announced that there will be no Vanderbilt cup race, would it not be within keeping and in line with the policy of the association to turn its hand toward something that might be of material benefit to those members who did not participate in the tour and those who do not care a fig whether the Vanderbilt cup race is run or not? The American Automobile Association some time ago announced a most elaborate plan of campaign for the benefit of motorists and of motoring, and now that the big events have been removed from the program there would seem to be nothing to prevent the carrying out, to some extent at least, of the policy that was announced when the 1907 officers took up the reins of government. There is nothing that so appeals to the masses as action, for it is realized that by deeds and not by words shall one be judged. There can be no denial of the fact that there is ample opportunity for action—action that has been postponed from time to time for one reason or another. It will not do to “receive” reports of chairmen of committees with a bland smile and a satisfied look; something indicating that some work has been done will be more pleasing to members.



CONDITION OF THE TRADE



DANGER lurks in the reports of the condition of the motor car trade that are being spread from certain quarters, particularly through the medium of the daily press. It has been made to appear that the industry is going to smash and that nothing short of a miracle can save it, whereas nothing is farther from the truth. It would indeed be surprising if the rush of the spring months were to be maintained all through the year and up to the very time new models begin to make their appearance on the market. There is no business, much less one depending to a large extent upon satisfying the pleasure wants of the people, which can and does keep up one continual round of filling rush orders. It is not only natural there should be a slackening in the volume of business at this time of the year, but it is desirable, in order that the trade may secure a little rest and that factories may be put in ship-shape order for another year's campaign. It is only natural that competition should become keener as new concerns enter the field and bid for business, for it is not reasonable to suppose that demand can at all times keep ahead of the supply even in the most prosperous times. That there is a healthy state of affairs is indicated by the fact that many of the motor car and parts manufacturing concerns are even now making elaborate preparations for enlarging their outputs for the season that is to come, and it is not a reasonable deduction to say that all these concerns are going ahead blindly and without knowing their ground. Notwithstanding this optimistic view, shared by many close students of the business, it will be a better course to go wisely rather than to go blindly; it will be a safer plan to curtail an output and dispose of it rather than to rush pell-mell into overstocking. The motor car manufacturing concerns that have been in business for the past couple of years or more ought to know their ground—they ought to know what will be demanded of them as to output for 1908 and they ought to be in a position to produce all that will be required of them and no more. The tendency to make elaborate changes and put out numerous models has lessened to a remarkable degree within the past 2 years and these facts have been greatly responsible for the sound position that is enjoyed by most of the American makers of motor cars, whereas the reverse is true of many of the foreign manufacturers. There is every indication that the business of 1908 will far exceed that of 1907.



CURRENT COMMENT



NEW YORK is to hold a 24-hour race the latter part of this week, the entry list to which has already reached large proportions. It is to be hoped there will be no aftermath stench such as followed a similar affair held in Chicago during the stay of the Glidden tourists and which now is reported to be under investigation. Nor is there likely to be any such trouble as has come up over the Chicago affair, for the race governing body has its headquarters in New York and its representatives ought to be on the ground to see that nonsense is eliminated. It might here be suggested that it would be a wise plan for the American Automobile Association to follow in the footsteps of the League of American Wheelmen by having a special representative of the racing board attend and supervise all track contests in order that scandal may not play a part in the racing game and put shame on the promoters and disgust the public.

BECAUSE a number of accidents happened during the running of the Critérium the French government thought it ought to put a stop to the contest in order that more lives might not be sacrificed. As a matter of fact the race itself had nothing to do with the accidents and not a race driver was in any manner connected with the fatalities. Indirectly, perhaps, the race could be blamed, but no more so than could a parade be charged with the collapse of a few women who might push themselves into a position of vantage and

as a result receive a few elbow jabs. French motoring contests are well conducted, the courses are carefully guarded and if the French government thought it was warranted in stopping the race it should take the trouble to shift the blame from the contestants and the management.

THERE has been some alarm abroad over the report that there might be a shortage of the supply of fuel for internal combustion engines and so there has been a little quiet investigation going on over the matter. It has been found that while some of the supply sources have petered out to a limited extent others have come to the front and there is now little danger that the supply will fall short for several generations to come, so motorists of this day and age need not lose any great amount of sleep over the matter. It is safe to predict that when gasoline has given out there will be something to take its place and motoring in some form or other will still continue to be popular with the masses and a necessity to the commercial world. Nor is the price of gasoline to be raised, notwithstanding the fine of a few millions of dollars assessed against the Standard.

AFTER a couple of months of about the toughest motoring that has been known the first of the contestants of the Pekin-Paris tour has reached Paris. Just what this tour will demonstrate has not been learned. It may show that motor cars can go anywhere, but it will also show that there is little use in seeking a market where it is necessary to hire hundreds of coolies to build a road to go a few miles. It will also show that motoring in China and Siberia is not a pleasure and that it is too expensive for even a rich corporation to stand. It is a safe bet there will be no more Pekin-Paris tours.

CHICAGO is to hold its second contest of the season and the second hill-climbing event in its motoring life. So far the contests promoted by the Chicagoans have been remarkably successful, not alone because of the work of the officials, but because the dealers of Chicago have seen the wisdom of working together in an effort to show the public what motor cars can do in a general way. The members of the Chicago trade colony happen to be blessed with more brotherly love than do those of most other places and this accounts to a large extent for the success of anything with which they are identified.

GOVERNMENT reports do not indicate that the United States has taken a backward step in the matter of its imports and exports in the motor car business. The reports show this country has made a steady gain in exports and that the importers have seen a falling off in their business. The makers of the United States have not made a strong bid for foreign business and yet the foreign trade has grown wonderfully, all of which has had some bearing on the reports of the unhealthy state of the European market.

GEORGES DUPUY'S gold cup tour, or American invasion of Europe, has been postponed because to rush the affair would have meant failure. Mr. Dupuy hopes to see his scheme worked out next season—and it should be. Certainly this will help open up a market for American-made cars and it will be found that the market will have to sooner or later be broadened in order to keep ahead of competition. American makers ought to be considering and preparing for this event even at this moment.

ONE good thing about beach racing, such as was seen at Atlantic City this week, is that the element of danger is reduced to the minimum, so that those who are not looking after a little blood and thunder excitement can enjoy such affairs. Beach racing is generally satisfactory, except where the management is lacking.

THE WEEK IN BRIEF

Prince Borghese, leader in Pekin-Paris race, reaches Berlin on Monday.

Fort George hill-climb in New York sees the Stearns almost sweep the card.

American gold cup tour of Europe is formally postponed until next year.

Twenty starters expected in 24-hour race at Brighton Beach Friday and Saturday.

Interesting figures furnished showing export and import business of United States, France and England.

Forty-two entries received for second annual hill-climb at Algonquin, Ill., promoted by Chicago Motor Club.

Atlantic City motor carnival opens with 3 days of racing in which the Stearns and Thomas Vanderbilt Flyer are stars.

Renaux wins Press cup in France; minister of interior orders criterium stopped because of seven deaths resulting from accidents.

First section of Ardennes race run under kaiserpreis rules is a sweeping victory for Belgium, four of six finishers being Minerva cars.

Special committee appointed by Motor Union of England to investigate fuel question reports that active steps be taken to develop alcohol as substitute for gasoline.

COMING MOTOR EVENTS

Chicago Economy Test—Second annual economy test of the Chicago Motor Club and Chicago Automobile Trade Association, September 6.

St. Louis Reliability Run—Automobile Club of St. Louis' 90-mile reliability run for owners only, September 14.

A. C. A. Show—Automobile Club of America's annual show at Grand Central palace, New York, week of October 24-31.

New York Show—A. L. A. M. show, Madison Square Garden, October 31 to November 7. Marcus I. Brock, 7 East Forty-second street, New York.

Chicago Shows—Eighth annual Chicago show, Coliseum, and first commercial vehicle show at Seventh Regiment armory, both November 30 to December 7. S. A. Miles, manager, 7 East Forty-second street, New York.

Importers' Show—Importers' Automobile Salon exhibit of pleasure and commercial vehicles in Madison Square garden, New York, December 28-January 4.

Chicago Commercial Test—First annual test of commercial cars, Chicago Motor Club, November 30 to December 7.

DATA ON EXPORTS AND IMPORTS

Figures Show that American Makers Are Doing Well Abroad —French Trade Reports an Increase in Business—Motoring Strength of United Kingdom in 1907

Washington, D. C., Aug. 3—The extent to which the export trade in motor cars has grown during the past fiscal year is vividly shown in the latest statistics compiled by the government. A perusal of these figures shows that American motor car manufacturers are right on the job when it comes to selling their product abroad. During the month of June 295 cars, valued at \$669,570, together with parts valued at \$62,484, were shipped abroad, while during the corresponding month of last year the total exports of cars and parts amounted to \$539,268. Taking up the figures for the fiscal year ended June 30 last, it is seen that 2,862 cars, valued at \$4,890,886, together with parts to the value of \$611,355, were exported, as against a value of \$3,497,016, representing both cars and parts, shipped abroad during the fiscal year which ended June 30, 1906. The increase in the number of cars exported during these two periods cannot be given, as the number of cars exported was not stated separately by the exporters prior to July 1, 1906.

The figures show that for 12 months ending June 1 the United Kingdom took \$1,530,304 worth of cars and parts, as compared with \$948,995 in 1906; France, \$512,524, as compared with \$282,317; Germany, \$155,623, as compared with \$99,732, and Italy, \$254,694, as compared with \$265,970.

The import statistics show that during June last sixty-three motor cars, valued at \$201,980, and parts to the value of \$84,020 were imported into this country, while during the same month of last year the number of cars imported was 101, the value thereof being \$342,261. The value of the imports of parts during this month was \$22,125. During the fiscal year 1907 the number of cars imported was 1,176, valued at \$4,041,025, as against 1,106 cars, valued at \$3,844,505, imported during the fiscal year 1906. During these two periods the imports of parts were valued at \$801,254 and \$400,514, respectively. The United Kingdom sent 103 cars, valued at \$347,758, as against seventy-seven, valued at \$314,193, in 1906; France, 841, valued at \$2,940,387, as against 820, valued at \$2,806,898, in 1906; Germany, sixty-one, valued at \$252,062, as compared with eighty-six, valued at \$360,252, in 1906, and Italy, 144, valued at \$420,154, as against ninety-one, valued at \$270,794, in 1906.

Figures from France

Paris, July 24—Statistics published on the French trade for the first 6 months of 1907 show an increase of over \$2,000,000 in the total exports of \$15,770,000, as compared with \$13,775,000 during the first 6

months of 1906. Britain comes first in the list with an increase of nearly \$700,000, cars being imported to the value of \$6,500,000 during the first 6 months of 1907. This is France's best market. German imports from France show a slight decrease of \$100,000 and Italian imports from France a serious decrease of 50 per cent. Compared with the figures of 1906 Switzerland, Spain and Brazil imported very large numbers of French cars, and Belgium took an ever increasing number from France. The United States took about \$1,100,000, \$100,000 less than in the first 6 months of 1906. France, on the other hand, is importing from England, Germany and the United States large numbers of machine tools, especially lathes and boring machines, and the quays of the French ports are encumbered with imported mechanical appliances being imported to the various factories in France. German motor car exports for the first 6 months of 1907 amounted to \$60,000 only, and Germans are asking themselves why their cars are not being pushed with more success in the world's markets. Exports of Italian cars during the first 6 months of 1907 were of a value of \$1,500,000 and their imports were valued at \$900,000.

England's Statistics

London, July 27—The census of motor cars and motor cycles registered in the United Kingdom up to June 24 last shows the following comparison with previous year:

	Cars	Commercial motors	Motor cycles	Licenses issued
1907...	61,617	4,124	53,877	205,606
1906...	45,700	2,699	45,645	167,565
1905...	31,129	863	34,703	107,426
1904...	18,340	21,521

It is thus proved that about 16,000 fresh cars were brought into the market during the twelvemonth ending June 24, which, at an average price of \$2,000, shows a total manufacturing trade of nearly \$32,000,000.

Chance for American Makers

New York, Aug. 5—A. E. Schwartz, the foreign representative of the American Car Manufacturers' Association, who has been in Europe for the past 8 months, comes back with the statement that next year should be an important one for American motor manufacturers who intend to invade the foreign field. He says there are tremendous possibilities for the small car trade with machines like the Ford, Maxwell and Reo, as well as for high-powered cars that can be sold at a reasonable price. He says the taximeter cab business is flourishing; that Renault will have a six-cylinder car next year of 30-horsepower and that the greatest demand is for cars of from 14 to 24-horsepower. Mr.

Schwartz brought over a sample of the Henreid rear axle, which has the transmission and differential in one housing. The A. M. C. M. A. representative says the tenth annual show this fall in Paris will be the biggest in history. American concerns can arrange with him for space before his return, which will be in about 4 weeks. He believes that the Americans should be liberally represented in the show and he declares that there is every indication that such will be the case.

BIG RACE PROMISED

New York, Aug 5—Brighton Beach promises to have the greatest 24-hour race ever run in this country on Friday and Saturday of this week. Twenty starters are expected and the affair will be conducted under the new rules framed up by the American Automobile Association for 24-hour racing. As promised now, the field will be made up of the following: Louis Strang, 28-32-horsepower Pilain; Frank O. Fuller, 60-horsepower de Dietrich; R. Mongini, 60-horsepower Delahaye; Montague Roberts, 60-horsepower Thomas; C. A. Coey, of Chicago, 60-horsepower Thomas; Mr. Van Tyne, 60-horsepower Clement-Bayard; W. Wallace, 60-horsepower Darraq; Micheun and Mulford, 60-horsepower Lozier; Smolson and Lynch, 40-horsepower Lozier; J. A. Helm, 35-horsepower Studebaker; Knepper and Lawell, 50-horsepower Frayer-Miller; R. S. Crawford, 50-horsepower Crawford; Burman, 50-horsepower Jackson; Graham, of St. Louis, 50-horsepower Cadillac; Campon C. Webb, 50-horsepower Welch; Zirbee and Friend, 35-horsepower Mitchell; 40-horsepower American; Baird, 50-horsepower Colt; 50-horsepower Stoddard-Dayton; 50-horsepower Corbin; 35-horsepower Aerocar; 50-horsepower Pennsylvania; 60-horsepower Oldsmobile.

RENAUX WINS PRESS CUP

Liseux, France, Aug. 6—Special cablegram—Eugene Renaux, in a Peugeot, won the Press cup, covering five circuits of a 78-kilometer course in 4 hours 32 minutes 56 seconds. Vimont, piloting a Westinghouse, was second in 4 hours 36 minutes 35 seconds, and Zellele, in a de Dion, third in 4 hours 44 minutes 46 seconds. Sorel, the de Dietrich crack, looked to be a sure winner, but within 5 minutes of the finish his allowance of gasoline gave out and left him stranded. He drove a splendid race and led the field by more than 10 minutes at the close of the fourth round. He had been given 19 litres of gasoline per 100 kilometers. Others to finish were: Vrignon, de Dion; Cottin, Cotin Desgrouettes; Buckhard, Westinghouse; Molon, Gladiator; Herisse, Eugene Brille; Latune, Cotin Desgrouettes; Dureste, Gobron Brille; Vonlatum, Gladiator; Valle, Aries; Marcey, de Dion; Barriaux, Motobloc; Perrett, Peugeot; Riviere, Rebour.

New York, Aug. 3—The cable from Paris states that because of accidents resulting in seven deaths the minister of the

interior has ordered stopped the criterium, a French event which started August 2 and which was to have lasted 5 days. On the fifth day was to take place the Press cup race. The tour, which was to have lasted 4 days, was scheduled to travel 994 miles at an average speed of 24.8 miles an hour, each car carrying four passengers, the weight limit being 3,630 pounds. The Press cup race was to have been run on the Liseux circuit and was to have been guarded by 2,500 soldiers. Only those cars which finished the 4 days' tour were eligible. The accidents which caused the minister to order the tour stopped were not caused by excessive speed but largely by the dust. The criterium of France, ending with the Press cup, is to France what the Glidden tour is to America and what the Herkomer tour was to Germany.

BIG PLANS ARE MADE

Cleveland, O., Aug. 6—It is probable the Cleveland Automobile Club will hold a sealed bonnet contest this fall. A committee appointed to investigate the subject has reported favorably on the matter. It is proposed to have practically three events covering 3 days. This will include a 3 days' run of the cars with sealed bonnets, each car carrying an observer. For electric cars it is the intention to have an efficiency test by having the entering cars charged under the direction of a technical committee and a run then made for mileage and speed. For commercial cars the plan is to have a special class and as an inducement for entries for this class it is proposed to invite representatives of New York, Chicago and Philadelphia mercantile houses using commercial vehicles as delegates to observe the demonstrations.

CHICAGO BILLS FALL TEST

Chicago, Aug. 6—So successful has been the summer campaign of the Chicago Motor Club that its contest committee is looking into the future, the result being the announcement today that the club will promote a series of commercial motor tests during the business wagon show in the Seventh regiment armory the week of November 30-December 1. Just what form these tests will be has not been fully decided, but as it is a matter the club long has had in mind it is believed that it will be something worth while. The affair will be spread over the entire week, with different tests each day. Makers of commercial rigs will be asked to give their views in the matter and it is believed that such a series will prove of real benefit not only to the show but to the trade as well.

RECEIVER FOR AEROCAR

Detroit, Mich., Aug. 8—Special telegram—Owing to temporary financial troubles, the Aerocar Co. has been placed in the hands of the Detroit Trust Co. as receiver in bankruptcy. No statement has been given out, but there seems to be no doubt that the company will go ahead.

FORTY-TWO IN CLIMB

Chicago Motor Club's Events at Algonquin Have Good Entry List—Classes Well Filled

Chicago, Aug. 6—Forty-two entries were made for the second annual hill-climb at Algonquin, Ill., which will be held on Friday under the auspices of the Chicago Motor Club. While this is not as many as were nominated a year ago, when the lists showed fifty names, it is believed more cars will go to the tape. In the previous affair only thirty-three of the fifty made the climb, but this time it is expected that everyone will make the effort, for the club put a penalty on scratching by making the entry fee \$30, with \$15 of this rebated in case the car starts. The entries are as follows:

Class 1—Piston area under 35:				
No. Car	Driver	No. Cyl.	H. P.	
1—Autocar	F. C. Vaughn	2	12	
2—Holsman	J. M. Renegar	2	10	
3—Autocar	James Levy	2	12	
Class 2—Piston area 35 and under 50:				
No. Car	Driver	No. Cyl.	H. P.	
4—Maxwell	W. B. Jameson	2	12-14	
5—Bulck	E. L. Welant	2	22	
6—Reliable-Dayton	J. S. Blything	2	12	
Class 3—Piston area 50 and under 65:				
No. Car	Driver	No. Cyl.	H. P.	
7—Jackson	O. J. Killip	2	20-24	
8—Rambler	E. Collier	2	22	
9—Gale	D. W. Cook	2	26	
10—Berliet	A. Odell	4	22	
11—Columbia	P. Bellow	4	24	
12—Jackson	R. R. Burman	2	20-24	
Class 4—Piston area 65 and under 90:				
No. Car	Driver	No. Cyl.	H. P.	
12—Mitchell	G. V. Rogers	4	35	
14—Pierce-Racine	L. F. Stevens	4	40	
15—Jackson	R. R. Burman	4	30	
16—Bulck	A. D. Trumbull	4	24	
17—Haynes	Frank Nutt	4	30	
18—Corbin	G. H. Bird	4	24-30	
19—Autocar	James Levy	4	30	
20—Rambler	R. Sheumacher	4	25-30	
21—Pope-Hartford		4	30	
22—Oldsmobile	Bamford	4	35-40	
22A—Moon	Branstetter	4	30-35	
Class 5—Piston area over 90:				
No. Car	Driver	No. Cyl.	H. P.	
23—Apperson				
23—Jackrabbit	C. Van Sicken	4	50	
24—Haynes	Frank Nutt	4	50	
25—Stearns	F. W. Leland	6	45	
26—Berliet	W. W. Shaw	4	40	
27—Apperson				
27—Jackrabbit	Phil Kirk	4	60-65	
28—Stearns	F. W. Leland	4	45	
29—Rambler	E. Collier	4	35-40	
30—Pierce-Arrow	P. Hoffman	4	40-45	
31—Matheson	D. Buck	4	60	
32—Packard	C. L. Johnson	4	30	
33—Berliet	J. W. Norden	4	40	
34—Stearns	F. W. Leland	4	40	

Class 6—Free-for-all, car making best time the winner:				
No. Car	Driver	No. Cyl.	H. P.	
35—Apperson				
35—Jackrabbit	C. Van Sicken	4	50	
36—Stearns	F. W. Leland	6	45	
37—Apperson				
37—Jackrabbit	Phil Kirk	4	60-65	
38—Stearns	F. W. Leland	4	45	
39—Woods electric	Peterson			
40—Woods electric	Metzger			
41—Woods electric	Newman			

This climb will be unique in that it is the only event of the kind in this country run under a handicap scheme, the formula consisting of multiplying the cylinder dimensions by the time and dividing this result by the weight of the car with driver. This is the formula in general use in Great Britain and it was tried here a year ago with considerable success. Added to this is the fact that it is a double climb. In the morning the climb is a standing start

effort up Perry hill—a quarter of a mile incline which defies high-gear efforts. In the afternoon the scene shifts to the north of the town, where the cars are sent up Phillips hill, half a mile, from a flying start. The work on both hills counts in the general results.

A different system of classification was adopted this year, the cars being grouped by piston area instead of price or horsepower, an idea adopted from the English, and the same one that was used last Saturday in the Fort George hill-climb in New York city. The bore is squared and this result multiplied by the number of cylinders.

The two hills are being fixed up for the occasion, a dangerous turn on each being banked, the club paying the bills. Also the Algonquinites are putting in a new stone bridge at the foot of Perry hill, which will be done tomorrow morning.

CHICAGO RACE SCANDAL

Chicago, Aug. 7—The row over the 24-hour race which was run at Harlem while the Gliddenites were here assumed another angle Sunday, when Paul Picard, entrant of the Matheson, who protested the victory of Coey in the Thomas Flyer, made public affidavits from two of the scorers in the race. One of them testified to a mistake which cost the Matheson 8 miles, while the other admitted a 5-mile error, the two making a difference of 13 miles. The Matheson was only beaten 4 miles in the official figures. Following the publication of these affidavits came a statement from C. E. Gregory, chairman of the racing board of the Chicago Automobile Club, who declared the club intends to fully investigate the race.

HOWER WINNER HOME

Cleveland, O., Aug. 5—Hal Sheridan with his White steam runabout, the winner of the Hower trophy, arrived in Cleveland last Thursday evening after traveling 2,300 miles. Walter White in his touring car and A. J. Scaife's White, both of which went through the Glidden tour with perfect scores, accompanied the trophy winner. The three cars were met near Painesville by enthusiastic members of the Cleveland Automobile Club, who gave them a hearty welcome. A big jollification at the rooms of the club followed.

BIG MILEAGE BY ELECTRIC

Cleveland, O., Aug. 5—The Baker Motor Vehicle Co. claims to have eclipsed all previous mileage records for electrics last week when one of its Victoria runabouts covered 168 miles at one charge. The remarkable part of the run was the fast time of 13.2 miles an hour averaged for the entire trip of 12½ hours' duration. The run was made under the observance of two newspaper men. The route included a trip into the country beyond Berea, where there are sand roads.

IMPORTANCE OF ADJUSTING TREMBLERS

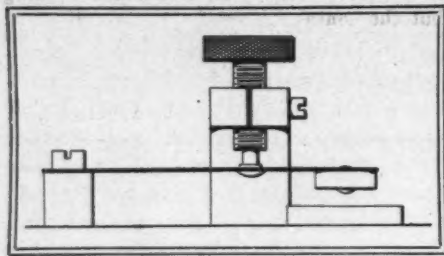


FIGURE 1—PLAIN TREMBLER

THE principal requisites of an efficient spark coil trembler are four: A quick break, high frequency, low current consumption and long contact dwell in proportion to the time interval between sparks. In addition there are the ordinary mechanical requirements of reasonable durability and non-liability to get out of adjustment by loosening of screws or otherwise.

Taking up and analyzing these four requirements in their order, it may be noted that a quick rupture is by no means as simple a matter as it appears on its face, yet is absolutely essential for an efficient coil. In other words the mere cessation of contact between the trembler and its screw, regardless of the trembler's rapidity of movement, is not sufficient to make a quick break. This is in part because the conductivity of the surfaces in contact depends somewhat on the degree of pressure between them, and the resistance increases as the pressure becomes very light. Again, the primary coil, like any other electro-magnetic coil, tends by its own self-induction to delay the cessation of the current. It is a familiar fact that, when an electric circuit which includes a coil is broken, there is a momentary "extra current" which flows in the same direction as the primary current. This extra current has a voltage much higher than that of the primary current, and tends, by the momentary heat produced at the point of separation, to fuse or vaporize minute portions of the metals in contact. This minute quantity of metal vapor affords a path by which the current momentarily continues to flow.

The intensity of the current momentarily induced in the secondary winding of the coil by a break in the primary is directly in proportion to the rapidity with which the primary current ceases to flow. If the cessation could be instantaneous, which is impossible, the secondary voltage would be infinite, according to the accepted theory. Evidently, therefore, to produce an efficient coil it is necessary, first, to make the rupture of the primary as abrupt as possible by quick physical movement of the trembler, in order to break the stream of metal vapor as suddenly as possible, and it is equally necessary in some manner to suppress the extra current in the primary. To suppress the extra current in the primary is the func-

Many Motor Ills Due to Faulty Manipulation of Contact Screws—How Adjustment Should Be Made

tion of the condenser, which is simply a bundle of leaves of tin foil insulated from each other and electrically connected alternately to the trembler and its contact screw. These leaves of tin foil, in a manner which does not need to be explained here, have a certain electrical capacity, which is made proportional to the expected quantity of extra current induced, and affords it an easier path than the stream of metal vapor at the contact points. When the trembler is working as it should, the bulk of the extra current goes into the condenser, and the sparking between the contact points is small. The less the sparking at the contact points, the more abruptly the primary current may be presumed to die down and the higher will be the voltage induced in the secondary winding. Incidentally, the amount of sparking at the trembler contacts is intimately connected with the durability of the latter. If a trembler sparks badly the contacts will burn and pit so rapidly that they will need constant filing and adjustment. It will be shown later that the current consumption of the coil is another important factor in the durability of the contacts.

High frequency in the trembler is a matter generally deemed important when the engine runs at high speed. Suppose the motor to be running 1,200 revolutions per minute and the trembler to be making 120 contacts per second, which is the speed of a moderately slow coil. Suppose, moreover, that the interval between the contact is so brief, and the armature's inertia so considerable, that the armature is in constant vibration from one contact to the next. Now, the motor speed is equivalent to twenty revolutions per second, consequently the trembler is making only six contacts per revolution, and there is an interval of 60 degrees on the crank circle between contacts. It is apparent at once that this represents a condition utterly opposed to anything like efficient running, since it will be merely by accident that the spark occurs with the crank in its most advantageous position. In other words, not only is the second spark perfectly useless as an aid to rapid inflamma-

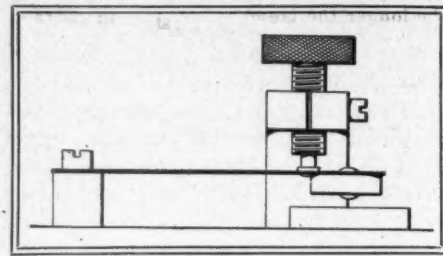


FIGURE 2—PLAIN TREMBLER

tion, but the failure of the armature to come to rest between timer contacts will virtually destroy the action of the engine. The tremblers of some good coils have a speed of three or more times the above, or, for example, 360 contacts per second. This is equivalent to eighteen contacts per revolution with the motor running 1,200 revolutions per minute and reduces the crank interval to 20 degrees. Even this is too great an interval for efficiency, and it is therefore evident that the first requirement of a high-speed trembler is that it shall come to rest instantly on the timer contact being interrupted. In case this happens, it is highly probable that only the first spark after making contact with the timer has anything to do with the ignition of the charge.

To require a low current consumption for a given spark is simply another way of requiring that the primary and secondary windings shall be properly proportioned, and that the current shall be quickly broken. In reality it means something else as well, namely, perfect insulation; and this, though it has nothing to do with the trembler adjustment, may be mentioned as a point which, in early coils, was not always given proper attention, the result being that many of them were nothing but bundles of concealed fireworks when in operation. Of course the result was that they gave very moderate external sparks, in spite of the strongest primary currents that could be used. The subject of adjusting the tremblers to give efficient ignition with small current consumption is of vital moment to the motorist, though by reason of its simplicity it is often neglected. It will be taken up in connection with the description of the several types of tremblers.

The fourth requirement, a relatively long contact dwell, may or may not be important, according to the particular conditions. If we assume that several sparks are needed to fire the charge, the character as well as the frequency of these sparks assumes considerable importance. Now, it takes any coil a certain brief length of time to "build up" its magnetism after contact is made. This is due to magnetic lag and to the retarding effect of self-induction in the primary coil itself. Its practical effect is that the trembler, unless quite slow, breaks contact before the magnetic field

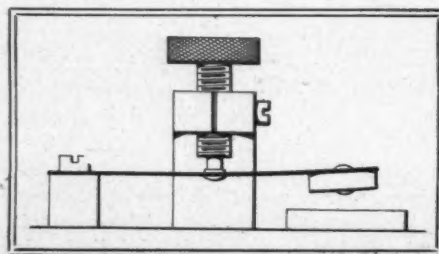


FIGURE 3—SCREW LOCK

attains its full value, and necessitates a higher voltage being used to force the coil quickly to its full strength. Obviously, the longer the trembler remains in contact, in proportion to the total period represented by a single vibration, the more efficient will be the coil with a given battery, up to the point of saturation being attained during contact. To lengthen the relative contact interval, several special constructions have been used, which will be mentioned later.

From what has gone before it is evident that the correctness of the above assumption regarding the value of several sparks is in need of proof. It is probably true when starting from cold or with incorrect mixture, and it is quite possible to imagine a trembler so sluggish that its first break would produce a very weak spark. But the considerable time interval between the contacts of even the fastest trembler makes it seem highly improbable that any but the first spark has any effect, and if this is the case the character of the subsequent sparks is obviously a secondary consideration. To modify the time interval between contact at the timer and the first rupture by the trembler, which is really the important point, is a comparatively simple matter, involving no special construction, but only adjustment of the contact screw and reasonably good initial design. The subject, it must be admitted, still needs investigation.

In figure 1 is shown a typical form of plain trembler. It consists of a flat spring, a button of soft iron riveted thereto, and an insulated contact screw located somewhere along the length of the spring. The stiffness of the spring, the size and weight of the button and the position of the contact screw will exert a marked effect on the speed and efficiency of the coil. If the screw is located some distance back from the armature, the trembler will vibrate slowly. On the other hand, if the screw is located directly over the armature, as in figure 2, the tendency will be to break contact so quickly that the current does not have time to build up in the coil. In the former case the armature continues moving upward as the contact is made, by virtue of the elasticity of the spring, and contact is appreciably prolonged before the magnet has time to pull the armature down. Figure 3 illustrates this point. It shows—somewhat exaggerated—a trembler in the act of making contact and springing upward on account of the

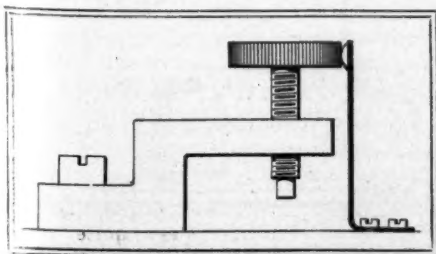


FIGURE 5—SPRING LOCK

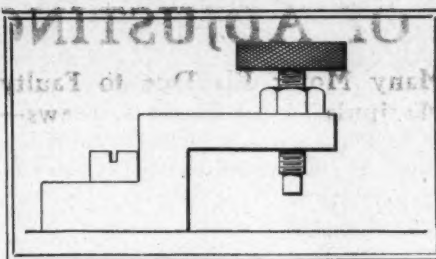


FIGURE 4—NUT LOCK

momentum of the armature. The action here is in a sense similar to that of the ordinary electric doorbell, in which a slow rate of vibration is obtained by treating the armature and clapper as a pendulum and arranging the contact spring to yield considerably after contact is made. For spark coils a happy medium is found with the screw in about the position shown in figure 1, which gives a fairly rapid vibration combined with sufficient dwell to build up the magnetism. Nevertheless, many of the best coils on the market have the contact screw placed substantially as in figure 2, and are designed to build up with the necessary rapidity.

The spring stiffness of the plain type of trembler must be in proportion to the weight of the armature. A weak spring with a heavy armature will make a sluggish trembler. A stiff spring with a light armature will work fast, but will require a stronger current in the primary to make it vibrate. The tendency today is to use as light an armature as possible, this permitting a light spring and moderate current to be employed. Another reason for using this combination is that a stiff spring requires in itself a stronger magnetic field to overcome it and consequently imposes a larger current consumption. This point will be taken up again in a later paragraph.

The contact screw of the trembler, being subject to what amounts to a minute but constant hammering, will loosen itself unless securely locked. Several devices for doing this are shown in figures 3 to 5. A locknut is not a satisfactory device, partly because it is less secure than the other arrangements shown, and partly because tightening it tends to modify the adjustment, which in many cases is very delicate. A good device is to split the mounting in which the screw is carried, and clamp it by a separate screw, as shown in figure 3. Another good method is to furnish the screw with a milled head of large diameter, against which bears a spring as shown in figure 5. The success of this device depends on the screw having a sufficient bearing in its mounting so that the spring does not tend to slant it over owing to looseness of the threads.

Among the well-known makes of coils using the plain trembler are the Providence, Connecticut, Kingston, American, Williams, etc. Some of these, for example the Providence coil, are provided with means for adjusting the height of

the armature above the core, but this adjustment is done only at the factory and the user is advised to touch nothing but the contact screw.

The reader is now in a position to consider the behavior of the plain type of trembler under adjustment of the contact screw, figures 1 and 2, which is the only adjustment this type of trembler receives. It is first found that the effect of this adjustment is very marked. This, however, does not refer so much to the length of the spark as to its frequency, and more particularly to the consumption of current. If the contact points are filed smooth and flat and perfectly true, the trembler will work regularly with a very light pressure of the contact screw. This condition represents the maximum speed of the trembler and the smallest consumption of current. If now the contact screw be turned down, thereby increasing its pressure, three things will happen. The armature, being brought into a denser magnetic field, will be more strongly attracted when contact is made. On the other hand, the magnetic strength required to attract the armature out of contact will be greatly increased and this effect will considerably overbalance the other.

In other words, the magnetic field will have to build up to a higher degree of intensity before the break can occur. This means a longer contact and a larger consumption of current, since to establish the normal flow of current itself requires a certain interval of time after contact is made. As the armature is moving more slowly than before, the break will be slower, and this will largely offset the effect of the stronger magnetic field, so that the length of the spark will be increased but slightly if at all. It is true the volume of secondary current represented by the spark will be greater, or in popular language the spark will be fatter, and it used to be supposed a spark of this character would ignite the charge more quickly than a thin spark. A number of recent experiments have gone far to discredit this theory, but even if they are true, the greater sluggishness of the trembler introduces an element of uncertainty into the spark timing which fully neutralizes any possible benefit from the greater heat of the spark. Meanwhile the third effect is to increase the current consumption enormously, as anyone can tell by putting a current indicator in the circuit. A good modern coil will fire the engine

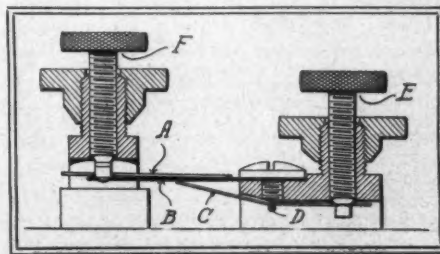


FIGURE 6—PITTSFIELD TREMBLER

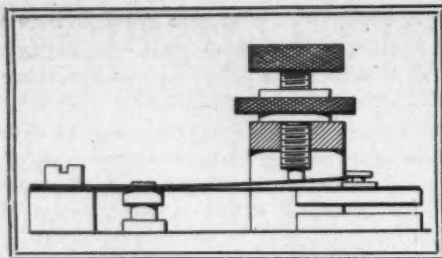


FIGURE 7—SCHUG VIBRATOR

perfectly with the trembler adjusted so that an ammeter in circuit will read from 5-10 to 1 ampere when the trembler is working continuously. Most spark coils have terminals marked "battery," "ground," etc., and to short-circuit the timer for the purpose of testing the trembler it is only necessary to bridge with a screw driver from the "battery" binding post to the "ground" binding post. If one has a battery ammeter the coil can readily be tested by connecting this to these binding posts. Most motorists, on making this simple test, will be astonished to see how small a turn of the contact screw will make a difference of 100 or 200 per cent in the reading of the ammeter. When they see a mere half turn of the contact screw causing the meter to jump from 7-100 ampere to 1.5 or 2 amperes, they will be likely to marvel at the indifference with which they have twiddled that same screw whenever the engine missed, and they thought that maybe the trouble was in the trembler.

It is worth while to remark here that a dry battery does not, like a storage battery, possess a definite number of ampere hours' of life. If it is discharged rapidly its capacity is much less than if it is dis-

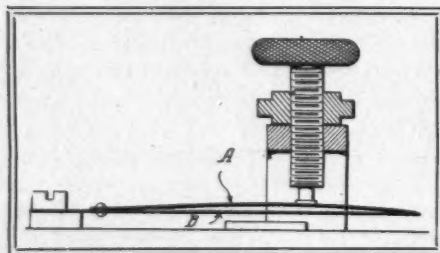


FIGURE 8—LACOSTE TREMBLER

charged slowly. A coil which demands more than 1 ampere under running conditions will exhaust any dry battery in a short time, whereas, with a good coil properly adjusted a battery should last a long time.

An efficient trembler requires to have its armature as close as possible to the pole of the coil, because with the ordinary straight cores employed the lines of force scatter very rapidly from the poles. It will, however, be apparent from the foregoing why it is worse than useless to force the armature close to the core by screwing down the contact screw. A good modern armature should not be further than about $\frac{1}{16}$ inch from the core when at rest, but if it is not in this position to start with,

and no adjustment is provided to bring it into that position, the only way to get it there will be to bend the spring, which can be done, but is a somewhat delicate operation. Since the minimum current required to work the coil is as often as not determined by the ability of the trembler to keep vibrating; and, since a weak magnetic field makes a slow trembler, it follows that it is very desirable to get the armature as close as possible. Of course it should under no conditions of working touch the core, or it will probably stick.

A general rule for adjustment of the plain type of trembler is as follows: Run the contact screw entirely out of contact and note the position of the armature. If it is more than about 3-32 inch from the core and the best results are desired, bend the spring to bring it to that distance. Then, with the switch closed and the current indicator connected across the battery and ground terminals—or wherever convenient in the circuit—run the contact screw down slowly until it touches and the trembler works steadily. Note the current consumption, which should be not more than 1 ampere, and may be as little as $\frac{1}{2}$ ampere. Adjust all the tremblers in this manner and start the motor. If any misfiring is noticed, hold down one trembler after another until the faulty one is located, and increase the pressure of the contact screw slightly. Before doing this the contact points should be carefully filed smooth and true.

The number of cells in the circuit should be proportioned to the design of the coil. If the coil is described by the maker as a 4-volt coil, it should be worked by two cells of a storage battery or four dry cells. The voltage of the latter will be somewhat higher, but since their internal resistance is also greater, the current delivery will be about the same. Most coils are made to operate on 4 or 6 volts. It is a two-fold mistake to use a higher voltage than the coil is designed for. In the first place it does not materially increase the length of the spark, whereas it does burn the contact points with undue rapidity. In the second place, as the current is larger, the batteries are exhausted more rapidly.

It is a common mistake of the beginner to put two or three extra dry cells in series, thinking it prolongs the life of his battery. The proper way to accomplish this result is to have a second set of cells in parallel with the first. Of course, the above does not apply to partly exhausted cells, which may be made to carry one home by coupling a number of them in series or multiple as the case may be. For example, if one has six cells exhausted to the point of showing only 5 amperes on short circuit, and has three or four fresh or nearly fresh cells, the latter can be connected in series and the six exhausted cells may be connected—two in series and three in multiple, which makes, for the time being, the equivalent of two fresh cells.

If the battery weakens a slight read-

justment of trembler becomes necessary, the contact being lighter than with a fresh battery. If the trembler is properly adjusted in the first place, however, very little change will be needed.

The reader now comes to special types of trembler designed to facilitate the adjustment of the spring tension, to prolong the contact dwell, or to increase the abruptness of the break. In some devices two or more of these objects are attained at once. One of these special devices, as shown in figure 6, is used on the Pittsfield coil. It has two objects, namely, to increase the abruptness of the break, and to make it possible to adjust the spring tension without changing the position of the armature. In the sketch the armature A is a thin soft iron plate attached to the spring B at its rear end. At the front end the two are slightly separated. The armature is perforated and the contact point is riveted to the spring in the middle of the

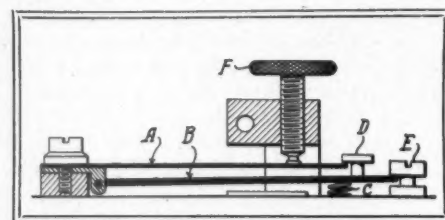


FIGURE 9a—CASTLE TREMBLER

opening in the armature. A flat spring C is pivoted at D, so that by screwing down the screw E an upward tension is produced against B.

The adjustment is as follows: The tension screw E is run up so as to relieve the armature spring of all pressure and the contact screw F is then screwed down until there is about 1-32-inch between the armature spring and the core. Then the adjusting screw is run down until a very light tension is imposed against the armature spring. When the timer closes the circuit the armature is attracted downward, but contact is not broken until the armature has acquired a certain momentum. Then the armature strikes the spring and contact is abruptly broken, producing a high voltage in the secondary. On the return the spring makes contact while the armature continues upward until its momentum is absorbed.

Another type of trembler, designed to give a long contact dwell and quick break, is shown in figure 7. The contact point is in the upper spring, which is pulled down by the button on top of the armature after the latter has moved a short dis-

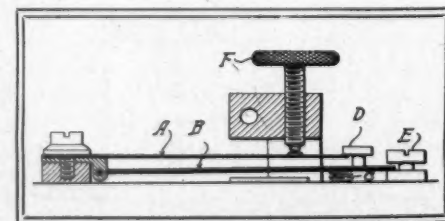


FIGURE 9b—CASTLE TREMBLER

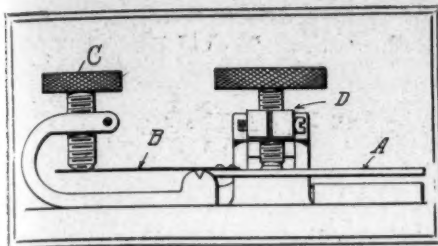


FIGURE 10—DOW TREMBLER

tance. When the contact screw is out of contact, the upper spring presses upward against the button, which, when the screw is making contact and the trembler is at rest, takes about the position shown. This particular trembler is made by the Schug Electric Mfg. Co., but the principle is used with slight variations in the Splitdorf and Nil Melior coils and others. The rule for adjusting is exactly the same as with the plain type of trembler, namely, to have the contact screw bear as lightly as possible.

The trembler used on the MM or La-coste coils, figure 8, is peculiar. In principle, however, it is similar to the one just described. In this trembler both the armature and the contact spring are thin, flexible pieces of steel. The contact blade A is riveted on top of the armature blade B and is slightly bent downward, so that its tip touches the armature blade. The contact screw is so adjusted as to put a very light pressure on the contact spring, thereby slightly flattening it. When the circuit is closed the armature starts downward, but contact is not broken by the

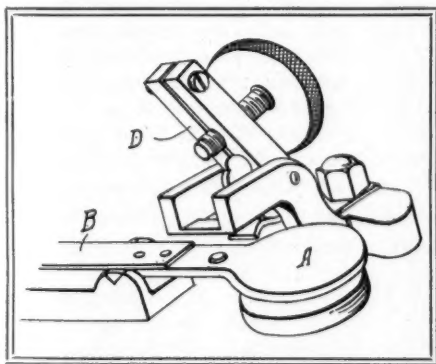


FIGURE 11—DOW TREMBLER

spring till the armature has attained a certain velocity, which it then imparts to more or less extent to the contact spring. On the upward movement the armature continues to move after the spring makes contact, thereby attaining the relatively long contact dwell, which is the object aimed at. On account of the very light weight and small inertia of the blades the speed of this trembler is quite high.

In the Castle coil used on Napier cars the principle of a long dwell and quick break is secured by somewhat the same construction as in the Schug and Splitdorf tremblers, but the construction is somewhat more elaborate, and a special feature is added in the form of a stop, which

limits the motion of the armature. In the sketch, figure 9, A is the contact spring and B the armature, which is pressed upward by the special coil spring C. When contact is made the button D is just clear of the end of the spring A and the armature is restrained from further upward movement by the stop screw E. When the armature moves downward it first catches the contact spring and breaks contact. Presently thereafter it reaches the limit of its downward movement against the stop screw E and returns. Since the distance of the armature from the core is definitely regulated by the stop screw, which is not adjustable by the purchaser, the only thing adjustable by the purchaser is the contact screw F, and owing to the presence of the stop screw the screw F can be adjusted only within very narrow limits. If a little too high or too low the trembler will not work at all. This of course saves the owner from negligently running the contact screw down unnecessarily and thereby wasting his battery current. The procedure in adjusting is first to see that contact is made as in figure 9a, and then to press down the armature as in figure 9b and see that an air gap exists between the platinum points. This trembler comes in the moderate speed class, it being stated by the makers to have a rate of approximately 10,000 contacts per minute.

A trembler in which the same results as in the Pittsfield trembler above described are attained in a slightly different manner is the Dow, shown in figures 10 and 11. In this trembler the armature A is pivoted at its rear end and the spring B projects back from the rear end and bears upward against an adjustable tension screw C. The procedure on adjusting is first to slacken the tension screw and run the contact screw down till the armature is the proper distance from the core, there being at the time a slight tension in the spring. With the armature position thus established the tension of the spring is adjusted till regular working is obtained. A special feature of this trembler is that the contact screw and trembler may be removed for filing of the contact points by tilting the mounting D of the contact screw upward, as shown in figure 11, which permits it to be entirely removed.

A construction a little out of the ordinary is that of the Fischer coil shown in figure 12. In this trembler the armature is a button riveted on the end of one spring, which in turn is riveted to another, and the two springs are articulated by a button similar to that used in the Schug trembler above mentioned. The entire armature is made to be sprung toward and from the magnet core by means of the lower screw, whose end has a double head engaging the spring as shown.

Another special device is found on the Elbridge coils, figure 13. These coils have the customary plain type of trembler, on which the armature carries a loose iron washer A, which vibrates up and down

with the trembler. The makers consider it an advantage to reduce the contact period of the armature as much as possible instead of increasing it, as is usual, and they claim that the loose washer produces this effect by striking and retarding the armature on the upper movement of the latter, and by allowing the armature to start quickly from rest after contact is made. The makers state also that the vibration of the loose washer on the armature prevents the contact points from striking, as they otherwise might do.

TEST STORAGE CELLS

In testing a storage battery three types of instruments can be used—voltmeters, hydrometers and lamps. During the discharge of a battery the specific gravity of the acid drops slowly and steadily. A 30-

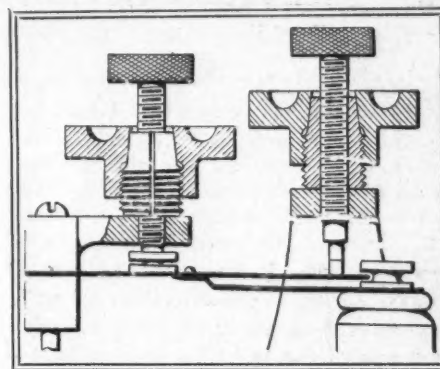


FIGURE 12—FISCHER TREMBLER

ampere hour battery charged contains acid of 1.22 specific gravity by hydrometer measurement. Discharging the cell steadily gives results as follows:

Time in hours	Voltage	Specific gravity of acid
0 hours	2.10	1.22
2 hours	2.10	1.20
4 hours	2.03	1.19
6 hours	2.00	1.18
8 hours	1.97	1.166
10 hours	1.84	1.153

At 10½ hours the voltage drops rapidly. These results plotted on square paper show a voltage curve and a specific gravity curve. This chart with the curves should be attached to the side of the battery box for reference. Whenever the battery is recharged, test the specific gravity of the acid, and if it is found to be wrong it must be corrected. If too high add distilled water; if too low add sulphuric acid. Once correct the cell can be put into use. Suppose, then, it has to be tested after being partly discharged. Test with the hydrometer, and refer to the chart to ascertain what number of hours on the chart correspond with the specific gravity.

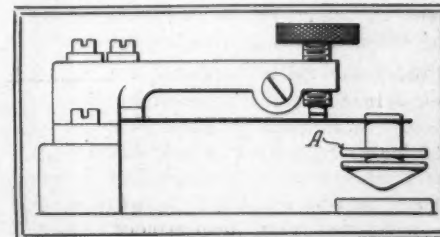


FIGURE 13—ELBRIDGE TREMBLER

MOTOR CAR DEVELOPMENT

LOCOMOBILES FOR 1908

FORTY-HORSEPOWER 1908 LOCOMOBILE WITH 5 BY 6-INCH CYLINDERS, 123-INCH WHEELBASE AND 36-INCH WHEELS

FOLLOWING its custom of the last 4 years, the Locomobile Co. of America, located at Bridgeport, Conn., is manufacturing two models for the 1908 market, one a five-passenger, medium-powered car, and the other a high-powered seven-passenger vehicle. The medium-powered car, known as model E, the name its prototype carried during this season, has the same motor power as at present, its rating of 20 horsepower coming from four cylinders with $3\frac{3}{4}$ -inch bore and $4\frac{1}{2}$ -inch stroke. This car differs from the 1907 product in that its wheelbase has been increased 6 inches, now measuring 102 inches. Instead of having a three-speed progressive gearset it is fitted with a selective set, offering four forward variations and one reverse. Besides these differences it has the improved cone clutch used in both models as well as the other improvements common to both cars.

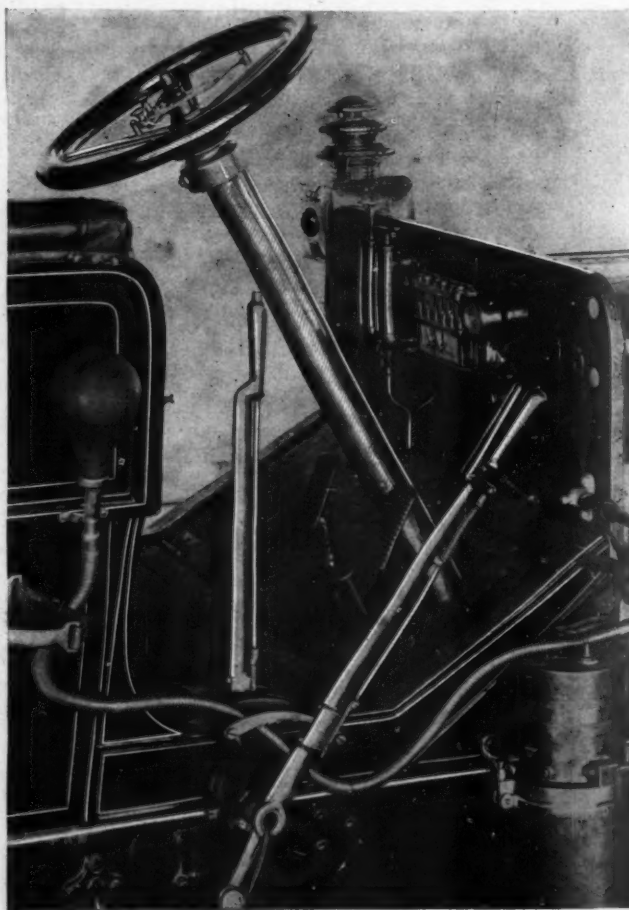
The high-powered car, model I, is the successor to the present model H and shows a considerable increase of power. Its nominal 40 horsepower requires cylinders with 5-inch bore and 6-inch stroke. This year the model H car, rated at 35 horsepower, has a $4\frac{1}{2}$ -inch bore and $5\frac{1}{2}$ -inch stroke, so the cylinders in the new model have profited to the extent of $\frac{1}{2}$ -inch increase in cylinder dimensions, a fact which marks the company as more more a believer in engines with the stroke considerably in excess of the cylinder bore. But it is not only in the motor that model I is a larger size than the present H—the wheelbase of 123 inches is 3 inches longer than the H and the road wheels are 36 instead of 34 and carry 4 and $4\frac{1}{2}$ -inch tires in front and rear, respectively. The springs and brakes on both

models have not increased over those used this season. In both cars the motor is supported well to the rear so that the radiator hangs in rear of the line of the front axle.

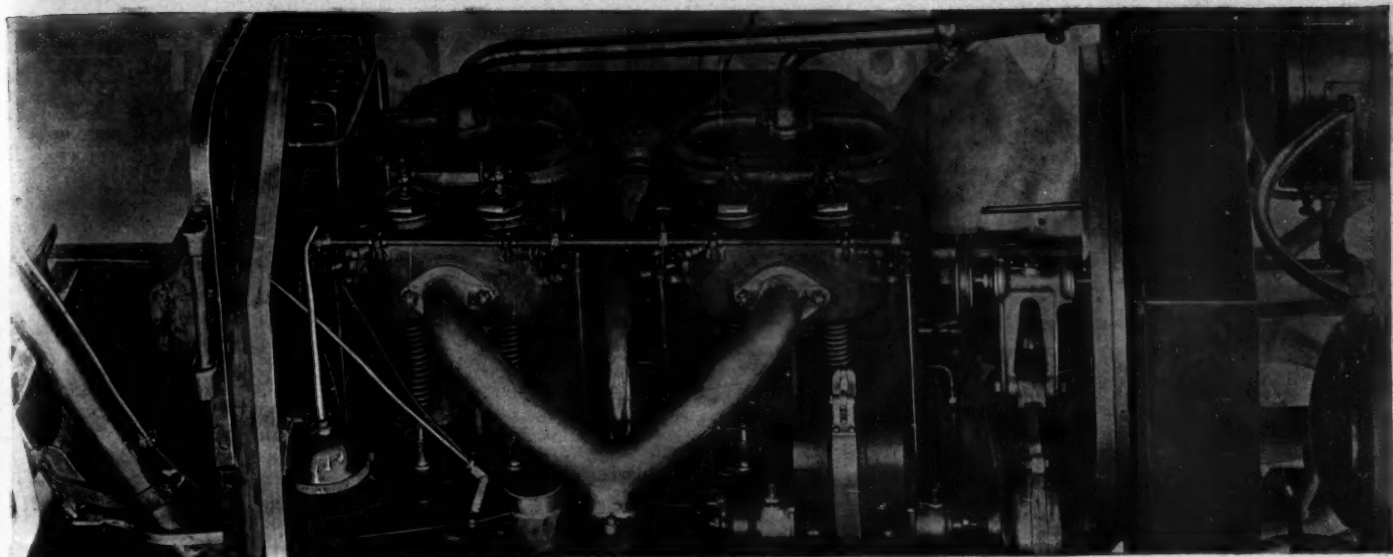
Although several changes already mentioned have been introduced and others to be referred to later have taken their place in the 1908 Locomobile models, the company still remains true to many of the principles of construction that have characterized the Locomobile cars since their inception in the gasoline field. In this

respect is noted the continuance of side chain drive; the use of low-tension, make-and-break ignition now in its fourth year with the company; the use of a cone clutch although in an improved form; four-speed selective gearsets now in their second year with the company; cellular radiators on both models, the same as used for several seasons; four-cylinder motors with cylinders in pairs and valves on the opposite sides; the upper half of the crankcase of the motor formed of manganese bronze, and the center part of the gearcases of the same material; centrifugal governor operating directly on the sliding throttle of the carbureter, and I-beam front and rear axles, the former downwardly arched and the latter dropped between the wheel spindles and the spring seating.

With all of these parts retained the reader naturally will ask what changes other than increase in size has the company made in its 1908 cars. Prominent in this line is the use of a new style of cylinder casting which differs from those used previously in that the top of the water-jacket is left open. Covering this opening in each cylinder pair is an oblong oval-shaped bronze plate, to the raised center of which the return water pipe to the radiator has connection. This return water pipe now rises gradually from the rear cylinder to the radiator top, being joined midway by a curved pipe from the front cylinder pair. A new form of automatic air valve for the carbureter is fitted. The magneto, retained on its base by a metal strap, has the bolt holding the ends of the strap together located on top of the permanent magnets instead of at the side. The hot air pipe for the carbure-



DASH AND CONTROL LEVERS ON LOCOMOBILE



INTAKE SIDE 1908 LOCOMOBILE SHOWING BRONZE PLATE ON CYLINDER HEADS AND NEW CARBURETER AIR VALVE

ter now passes across between the cylinder pairs to the opposite side of the motor, where it takes in heated air through the perforated flanges on the exhaust manifold. Directly above this air intake it carries an adjustable valve by which the amount of heated and cool air inspired can be varied by the driver. The exhaust manifold carries four longitudinal flanges or ribs. Priming cups are carried in caps above the intake valves instead of in the cylinder crowns. The clutch spring is enclosed and surrounds the clutchshaft instead of being exposed and located to the side of it. Added to these are many minor details in connection with the power plants and the body.

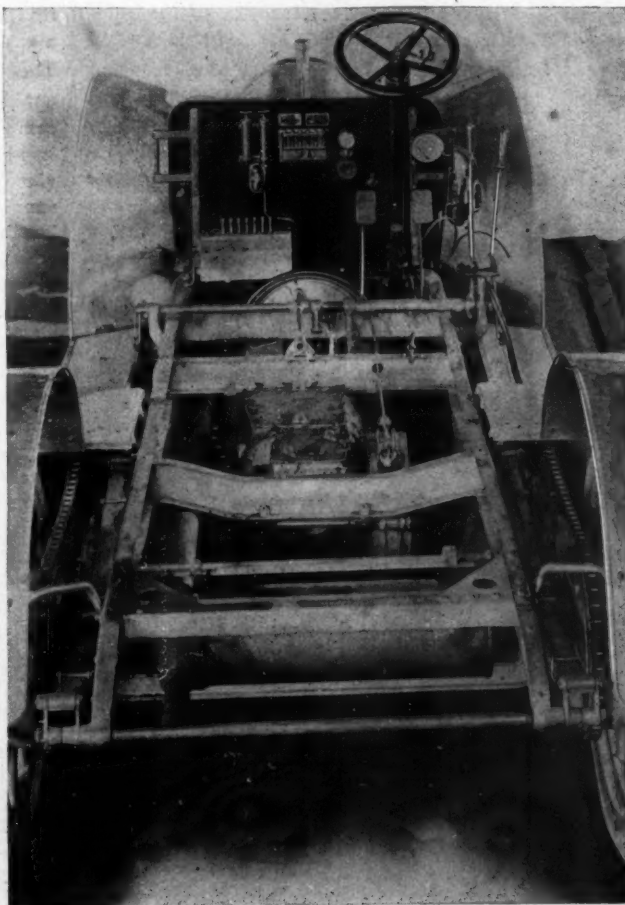
It must be understood that two models, that is the 20 and 40-horsepower cars, are practically identical in their manufacturing features and general design, the main difference being in the matter of dimensions and power. The first trial machines in both models were placed on the road for tests months ago and the active manufacture of both was commenced by the entire factory force some time ago, the last 1907 models having been completed previously. The materials used in both cars are alike and the same workmanship has been bestowed on each. Each chassis may be had as a runabout, a touring car, a limousine or a landaulet. The smaller car, model E, can be furnished with a removable tonneau which is interchangeable with a rear deck or boot carrying a rumble seat which holds it down and is out of sight when not in use. Behind the rumble seat is a large carrying space for baggage. In fastening the tonneau or deck in place wing nuts are used so that tools are not required. With either the rear deck or tonneau in

position nothing indicates that they are not permanently attached. When this small car is equipped as a touring car or runabout it is supplied with a hollow aluminum dash, with a limousine a straight mahogany dash. The 40-horsepower car, as is the case in the present large machine, carries a mahogany dash regardless of the style of body used.

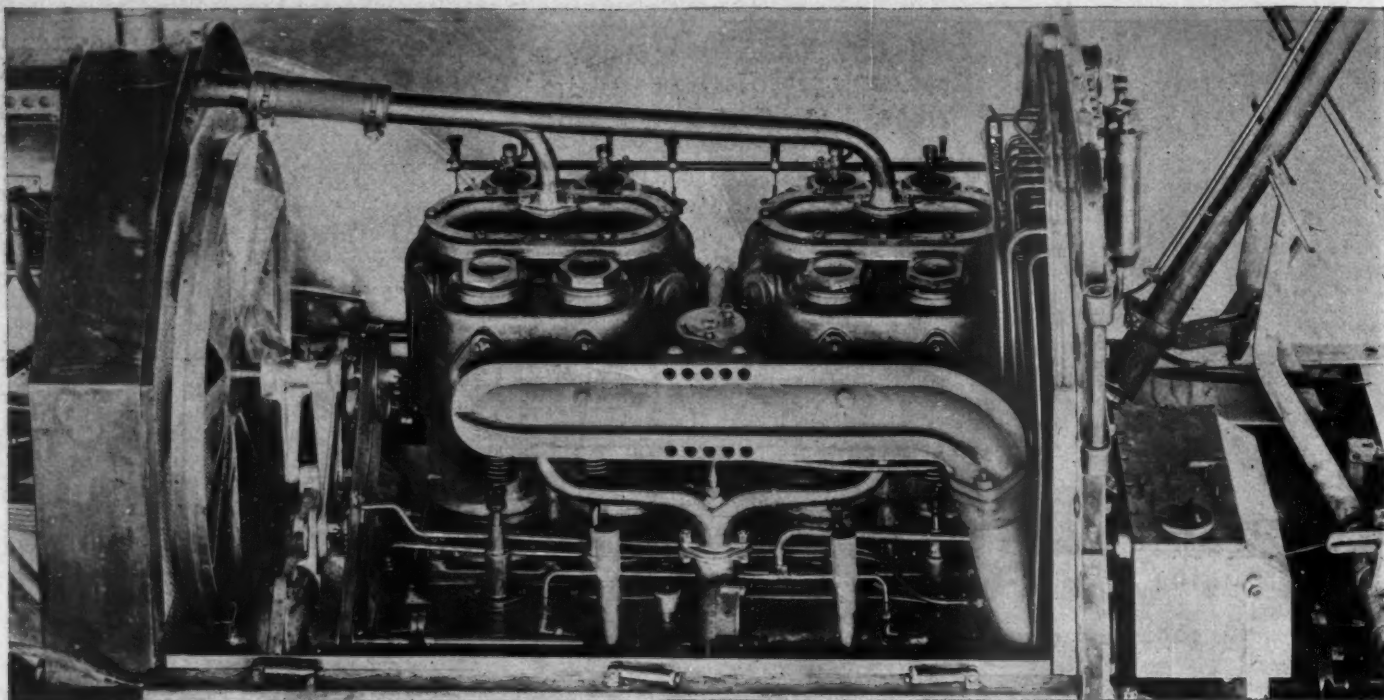
In both motors valves are mechanically operated and symmetrically arranged on opposite sides, the inlet valves being on the right. Each camshaft is made from a

single bar of steel, with cams integral. The camshaft operating the inlet valves also carries the skew-cams for the make-and-break igniters; these are of the type used in all Locomobiles. The time of ignition is varied by sliding the camshaft lengthwise, so bringing different parts of the varying profile of the cams under the trip-rods. The gears operating the camshafts are housed in a dustproof aluminum casing bolted to the front end of the crankcase. Each of the camshaft gears drives another gear, the one on the inlet side rotating the magneto used to furnish the ignition current and the other driving the centrifugal circulating pump.

In the 20-horsepower car the magneto is the only source of current used, the engine being started without batteries. In the larger car storage batteries are provided as a part of the standard equipment in order to facilitate cranking. Compression reliever cams are also employed in the large engine, being formed integrally with the exhaust cams and acting on the exhaust valves. The magneto is of the low-tension type, the same as used in the 1907 models. A flexible coupling has been placed on the pumpshaft to insure against binding and to make it an easy matter to remove the pump. The pumpshaft carries a flanged pulley for the fan belt. The carbureter, placed low down in the inlet side, is practically the same as the 1907 model, being of the float-feed type but fitted with a new style automatic air valve. A centrifugal governor, acting upon the throttle which is incorporated with the carbureter as of old regulates the speed of the engine, but the speed of the engine can be increased beyond the rate per-



REAR VIEW OF LOCOMOBILE CHASSIS



ON THE 1908 LOCOMOBILE THE EXHAUST MANIFOLD IS RIBBED AND HEATS THE INSPIRED AIR

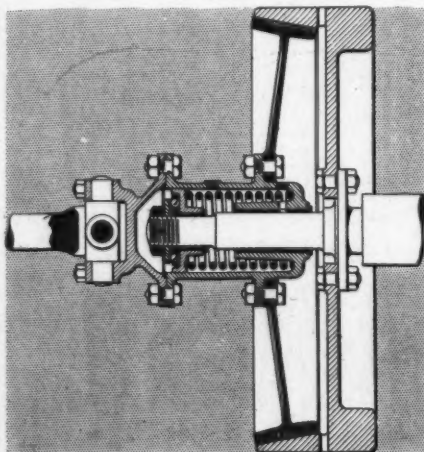
mitted by the governor by the use of the foot-operated accelerator.

A mechanical lubricator, driven by a steel belt from a pulley on the rear end of the exhaust camshaft, is placed under the sloping footboard at the left and just over the exhaust pipe, whose heat keeps the oil in a condition to flow easily through the pumps and pipes. Sight feeds on the dash enable the driver to know just how the oil is running. A hand pump is provided for use in case an excess of oil is required temporarily, or for emergency use. On the 40-horsepower model an extra oil reservoir holding 14 pints is hung on the frame and connected by a pipe to the lubricator tank. If the oil in the lubricator becomes exhausted a fresh supply can be pumped up from the auxiliary tank. This arrangement is omitted from the smaller model which carries 1 gallon of oil, enough for several hundred miles.

In the manufacture of the engine a number of interesting processes are employed, some of which are decidedly simple, notwithstanding their effectiveness. For instance, piston rings are so finished that when placed in their cylinders they fit as closely, it is claimed, as if they had run long enough to become worn to the exact bearing surface of the cylinder. This is accomplished by placing the rings, after they have been ground in a regular grinding machine with a magnetic chuck, in a holder that retains the rings exactly as a piston does. This is put into a cast iron cylinder bored and finished like an engine cylinder, and worked back and forth, just as is the piston in the engine, with a little abrasive substance to remove the irregularities from the rings. As a result of this process the rings are worn exactly as they would be worn by actual use in service, and when they are assembled into their

engine they fit closely and hold compression as if they had been run for some time. It is necessary to renew the grinding cylinders at frequent intervals, as they are quite rapidly destroyed; but this is found to be well worth while in view of the good results obtained from the process. After leaving the grinding machine on which the preliminary work is done the rings are magnetized, thanks to the magnetic chuck in which they are held, and in this condition would be sure to attract and hold small particles of metal. There would consequently be unnecessary wear on the cylinder walls, piston rings and pistons, and under some circumstances this might become very serious. A simple demagnetizing apparatus has been installed which leaves the rings as free from magnetism as they were before grinding and removes the possibility of trouble from this source.

The connecting rods are of forged high-carbon open-hearth steel, the solid wrist-pin ends bushed with hardened steel and



LOCOMOBILE CLUTCH AND UNIVERSAL

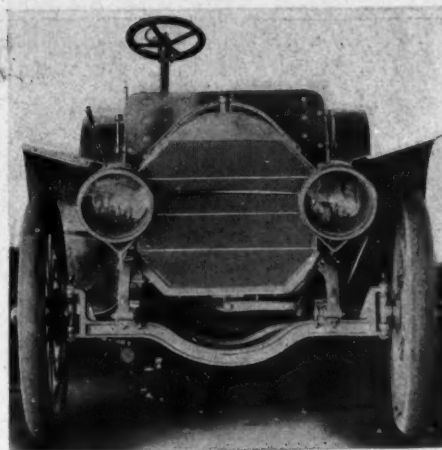
the split lower ends lined with Parsons' white brass. It has been the custom at the Locomobile factory to bore out the lower ends in a boring machine and then fit each one to its own crankpin by scraping. The bearings are now bored a shade small and a mandrel of highly-polished and hardened steel, very slightly tapered and of the exact size of the crankpin at its largest part, is forced through the ends, a special press being used for the purpose. The passage of the mandrel expands the opening to the precise size required and compresses the metal and slightly hardens it at the surface producing a polish or glaze the same as the glaze required after running for some time in the engine. The bearing, after this process, fits its ground crankpin. Actual tests made before this plan was adopted showed, according to the company's reports, that bearings that were mandrel-finished wore longer and better than scraped bearings. The main bearings of the crankshaft, which are also lined with Parsons' white brass, are finished in the same way. The crankshaft is machined from a solid hydraulic forging of alloy steel.

The clutch is a simple cone of ample diameter and width, faced with heavy leather, backed by flat springs; the springs cause the clutch to take hold gradually, starting the car without jerking. Spring thrust is self-contained when the clutch is engaged. The universal joint between the clutch and the gearbox is made up of steel forgings, hardened and ground; the pins are stationary, held in position by bolts with castellated and cotter-pinned nuts, and the bearing surface extends nearly the full width of the knuckle.

The gearbox is made of manganese bronze, with coverplates of aluminum composition, and all the gearshafts run on

imported bearings. A rearward extension of the main casing contains the differential and the bevel gears driving the countershaft, which also turns in ball bearings. There are two sliding groups on the squared shaft, one having two gears for first and second speeds and the other a gear and a clutch for the third and fourth speed-respectively, the drive being direct on the fourth speed. On the right hand side of the gearcase the countershaft carries the drum for the footbrake. This drum on the 20-horsepower car is 10 inches in diameter and 3½ inches wide. On the 40-horsepower car it is 12 by 4 inches. The brake is operated by foot in the usual way. Lubrication of the large metal surfaces is afforded by a self-feeding grease cup. The outside ends of the countershaft run in ball bearings; the countershaft sprockets have hardened teeth. The chains are of the roller type, and of ample width. The rear sprockets are formed integral with the steel brake drums, the whole being bolted to the enlarged spokes of the rear wheels. The emergency brakes are of the internal type, and are entirely enclosed. Sizes are as follows: Large car, 11 by 1½ inches; small car, 14 by 2 inches. Steel cables form the connection between the lever and the brakes. The lever oscillates a transverse shaft and a short arm on each end of the shaft carries the front end of the cable through which it is connected with its brake. The total braking surface of the small car is about 220 square inches; and on the large car is about 320 square inches.

Both front and rear axles, in both cars, are of forged steel, of I-beam section. Spring seats and, in the case of the front axle, the steering yokes, are forged integral with the axles, so that each is in a single solid forging. The steering yokes



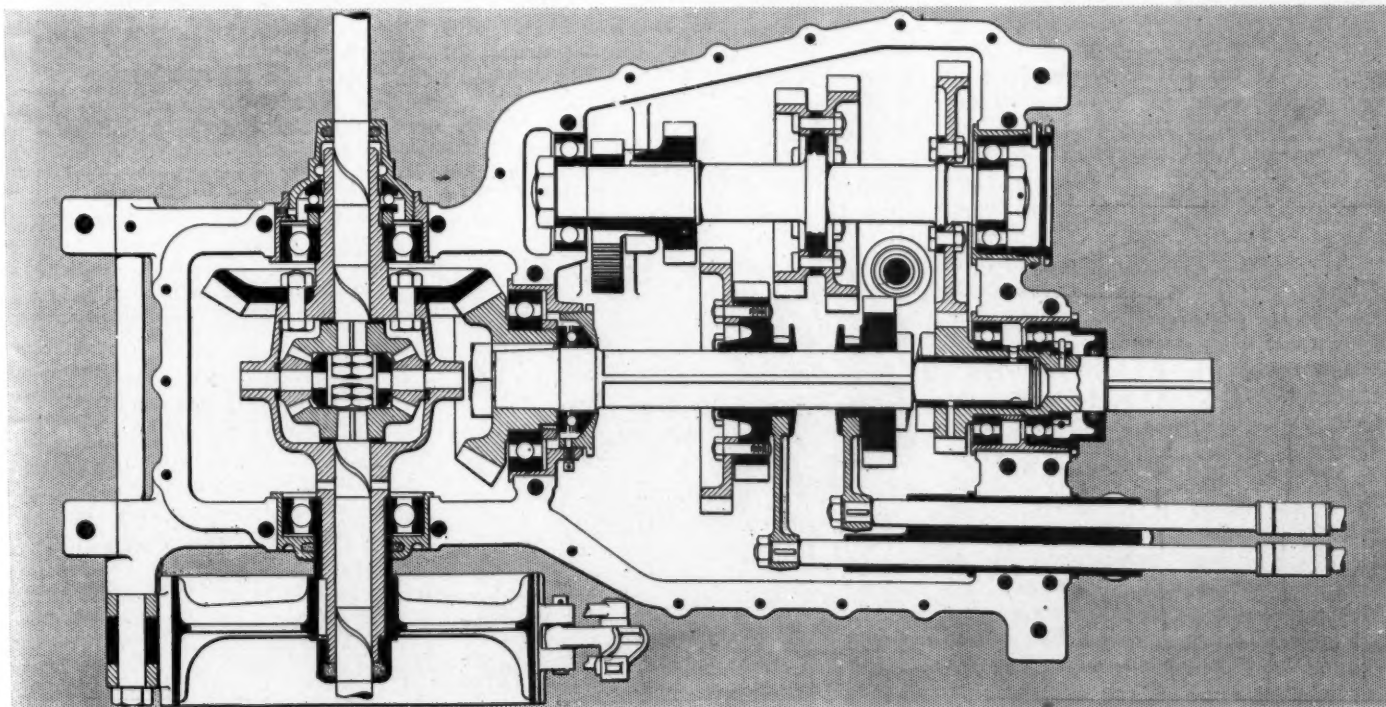
LOCOMOBILE'S 1908 FACE

and pivots are substantially designed. The transverse rod connecting the steering pivots is placed behind the axle and conforms to the sweep of the axle. The joints are of the ball-and-socket type, with spring buffers to absorb shocks, and are enclosed in leather boots which exclude dust and dirt and retain lubricating grease. The steering gear is of the worm and sector type, both worm and sector being glass hard and by means of an eccentric bushing on the sectorshaft wear can be taken up, obviating any back-lash which may develop after long use. Spark and throttle levers are mounted on top of the steering wheel, but do not move with the wheel. Their movement is carried through the steering tube by means of smaller concentric tubes carrying at their lower ends small enclosed bevel gears meshing with similar gears on the lower ends of short vertical shafts whose upper ends carry the levers through which the throttle and spark are controlled. The hand wheel is of bronze with a rim or grip of black

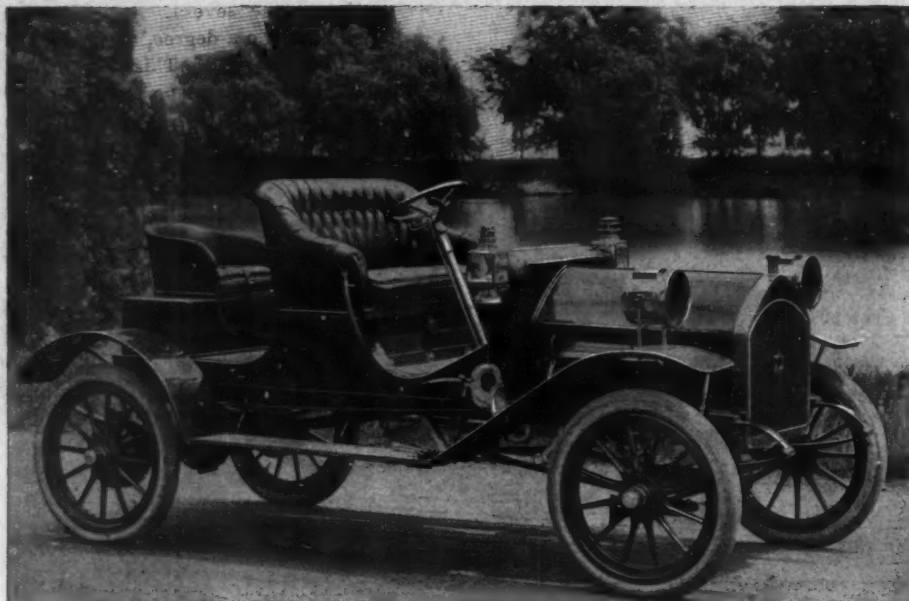
vulcanized hard rubber, moulded over the bronze, making a substantial, durable and comfortable rim to use.

The frame is of pressed alloy steel throughout and the cross members to which the transmission is hung are deep. The rear ends of the main frames are connected by a steel bar passing through holes in the end forgings; the outer ends of these bars carry the spring shackles. At the front end of the frame is a dropped member or cradle on which the radiator is carried; not being dependent upon the side frames for direct support, the radiator is not subjected to twisting stresses. A point that is of interest is that the front wheels are carried well forward—or, to put it another way, the power plant is well back, so that the front of the radiator is a trifle behind the center line of the front axle. On the large car the rear springs are 50 inches long and the front springs 40 inches. On the smaller car the rear springs are 44 inches long and front springs 36 inches. When the smaller car is built as a limousine the wheelbase is increased to 116 inches, 14 inches longer than the touring car. All wheels run on ball bearings.

All drop forgings used in the Locomobile—approximately 200, together with the drop dies—are made in the company's own forging plant, which is in itself a manufacturing plant of no small magnitude. After forging the parts are subjected to delicate heat-treating processes by which the strength is increased and each is given the proper hardness for the work it is to do. Some parts, such as gears, are given a final heat treatment after being finished, as cutting would be out of the question after the hardening process. Owing to the very sensitive character of the alloy steels used it is necessary to regulate the



LOCOMOBILE FOUR-SPEED, SELECTIVE, BALL-BEARING, 1908 GEARSET IN PLAN SECTION



NORTHERN MODEL C, TWO-CYLINDER ROADSTER

heating with the utmost accuracy; therefore the heating is done in oil furnaces whose temperature is indicated by pyrometers. Oil is also used as fuel in the annealing furnaces. The magnitude of the plant involved in the making and heat-treating of forgings can be judged from the fact that the consumption of oil for fuel amounts to a thousand gallons a day. All forgings are pickled in acid, and subjected to a sand blast and then hand-filed. The few castings are used for making parts which would be very difficult to forge. These are treated as the forgings.

All finished parts are sent to a testing department before being assembled, and are subjected to minute tests for accuracy, vernier instruments and micrometers being employed, together with special testing machines for special parts. Errors of more than thousandth part of an inch result in the part being sent back to be made right; or, if the error cannot be corrected, the part is scrapped. One of the most intricate pieces of work in the whole establishment is the cutting of the camshaft for the inlet side, with its eight cams—four for the valves and four for the igniters—the latter with their varying contour. A special machine for this work was designed and built at the Locomobile factory, and is almost human in its weirdly automatic action.

The difficulty of making paint stay on the hood, which is often hot, and the mudguards, which are subjected to a great deal of vibration, has been met by baking on a special enamel which makes a permanent foundation for the finishing coats of paint and varnish. The color put on the car in the paint shop is optional with the purchaser.

In outward appearance, generally speaking, the 1908 Locomobile cars resemble 1907 models, although the small car is somewhat altered. There are no sweeping

changes in either model, the most important departure from 1907 design being the increase of power in the large car and the substitution of a four-speed selective gear in the small car for the three-speed progressive gear used in the 1907 car, and a much larger engine in the larger car. The sprocket boxes, forming steps leading into the tonneau, have been worked out a little differently as to outward form, looking neater and at the same time occupying less space. Square side lamps will be standard equipment instead of round ones. Another detail is a new coat rail which when not in use disappears in the top of the front seats, and when needed is pulled out as far as necessary. The equipment includes all five lamps, generator, horn, tools, spare parts, top irons, tire carrier, footrest, muffler cut-out.

NEW TYPE OF AUTOCAR

A mile-a-minute 35-horsepower roadster is the latest announcement from the Autocar Co., Ardmore, Pa., in the four-cylinder car line. This roadster, with $4\frac{1}{4}$ by $4\frac{1}{2}$ -inch cylinders, 112-inch wheelbase and 3-

by 4-inch tires is in mechanical details a practical duplicate of the present four-cylinder car. It has many alterations, though, consequent upon the use of a roadster body. In this regard the bonnet is considerably longer; the oiler is carried under the hood instead of on the dash; the steering wheel is of larger diameter, measuring 19 inches; operating levers at the right side are considerably shorter than in the touring car; the gear ratio between the motor and rear wheels is higher; a bed for the magneto, should it be desired, is formed integrally with the motor crankcase; the steering column is more inclined than ordinarily and an optional color scheme is given, some of these combinations being French gray, cerulean blue and crimson. Most interesting in connection with the body arrangement is that the car is suitable for three or four-passenger service. When carrying three passengers the rumble seat is centrally located in rear of the front seats as seen in the illustration but when four passengers are carried this rumble seat is moved to the side and another one placed alongside of it. Should neither of the rumble seats be desired they can be removed. In all other respects the roadster follows conventional lines with its semi-racy fenders and short running board.

NORTHERN ROADSTER, MODEL C

According to the A. L. A. M. formulæ for estimating horsepower the new model C roadster manufactured by the Northern Motor Car Co., Detroit, Mich., has a rating of 24.2 horsepower, its two opposed cylinders having a $5\frac{1}{2}$ -inch bore and $5\frac{1}{4}$ -inch stroke. Model C marks a departure in the lines of Northern manufacture and makes the company one more disciple of the selfish or three-passenger car with the rumble seat in the rear. The motor has its cylinders mounted crosswise in front under the bonnet, as in the present two-cylinder Northern touring cars and on the sides of the bonnet are square projections for enclosing the ends of the cylinders. Speed variations are through a planetary gearset and drive to the rear axle is by shaft and



ATTACHING DETACHABLE REAR DECK ON 20-HORSEPOWER LOCOMOBILE



ATTACHING DETACHABLE TONNEAU ON 20-HORSEPOWER LOCOMOBILE

the bearing problem is the same as in the touring car. The body lines are conventional, the front seat having no division between the passengers, the rumble seating reposing on a box compartment on the rear platform and the steering column inclined at the same angle as in the touring car. The front fenders are of the 45-degree type, the running board is longer than in the majority of roadsters and the back fenders are modest semi-circles covering the upper half of the wheels. Square side lights are carried on the dash and the round headlights are placed at the sides of the bonnet and above the front axle. The dash is of the concave type. In all mechanical respects the car is the same as the model C 1907 touring car.

THE GOGGLETTIE FOR TO DUST

In his gogglette No. 2, E. B. Meyrovitz, 104 East Twenty-second street, New York city, combines comfort with dust-obstructing qualities. The eye cups are made of aluminum and are very light. The lenses as well as the cups are curved to conform to the contour of the face. The cups are fitted with inflated rubber cushions, which make them fit snugly around the eyes, protecting the eye from insects and foreign particles. The ventilation of the eye cups is of novel and effective construction. In addition to this the gogglette No. 2 is so arranged that either white, amber or smoke lenses can be used, the changing of lenses being only a moment's work; also lenses ground to fit the eyes of the wearer can be easily inserted. Special attention has been given to making the gogglette No. 2 perfectly sanitary. It can be taken apart and washed or sterilized without doing any harm to it. The whole folds in a very compact form and can be carried in a neat leather case furnished by the maker.

MOTOR CAR LITERATURE

The Pope Motor Car Co., Toledo, O., is at present mailing to its many customers and friends a handsome pocket-size leather-covered memorandum book fitted with a detachable memorandum pad and card

pouch. The cover is in black morocco with the Pope crest in gold on the center of the front cover and the receiver's name and address in gold on the bottom of the front cover.

The latest booklet illustrative of Holsman motor cars of the buggy type built by the Holsman Automobile Co., Chicago, Ill., contains twenty-four pages of compactly-arranged descriptive and argumentative matter, together with illustrations on the Holsman vehicles. The frontispiece shows the factory. All models are described and no attempt has been made at decorating the pages.

In its initial booklet on its gasoline buggy motor car the Columbus Buggy Co., Columbus, O., uses a red tint ink on white paper. The cover shows the buggy car on a country trip and the six pages tell the history of the company, speak of the merits of the car and give its complete specifications. Illustrations showing the motor and chassis parts of the car are not given.

There are a few out-of-the-ordinary and very useful features in the Stevens-Duryea instruction book for its models U and S cars. These are the clear illustrations of the double-tube carburetor system in which every part is marked by a capital letter and the description made to conform with

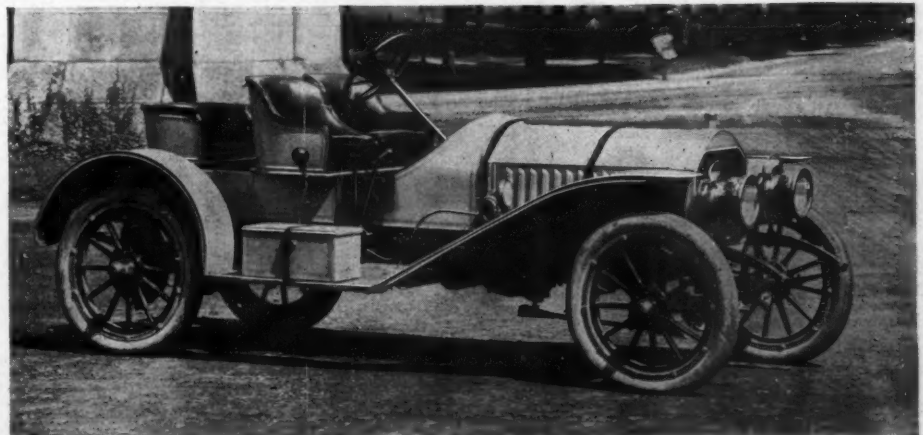
these letters. The several other illustrations are explicit to a degree, all irrelevant portions being removed. This is the chief feature of the illustrations in that they show only the part under question. The book is a pocket-size paper-bound volume of thirty pages. As in many other instruction books the majority of the illustrations are made from retouched photographs.

Another set of valuable road maps has just been issued by the Survey Map Co., of New York, this lot embracing twenty maps and twenty-eight routes in eastern Pennsylvania, being the official maps and routes of the Quaker City Motor Club. There is the customary celluloid cover in which to carry the maps and to protect them from the wet weather. The roads are shown in red so as to be easily seen.

A touring map showing all the best roads from all eastern points to the Jamestown exposition, revised and brought up to date, has been issued by the Hartford Rubber Works Co., of Hartford, Conn. This has been sent out in all directions and will be found of value to the motorist who desires to reach the exposition by road.

One of the most complete catalogues of trimmings, mountings and general hardware used in motor car construction has been issued by C. Cowles & Co., of New Haven, Conn. The catalogue illustrates and describes not only all the mountings but many important and necessary interior fittings that are used by motor car manufacturers and repairmen. It contains 168 pages and cover and while there has been no attempt at extraordinary printing, it is a well printed and tastefully gotten up affair.

A book that will find a welcome place in the libraries of all students of the motor car and the gas engine is the first number of the second volume of the Transactions of the Society of Automobile Engineers, which has just been issued and which contains eighty-three pages. Contributions are by Thomas J. Fay, Thomas J. White, Henry Hess and Henri G. Chatain. The pamphlet is issued from the office of E. T. Birdsall, secretary of the society, 82 East avenue, Rochester, N. Y.



AUTOCAR MILE-A-MINUTE, FOUR-CYLINDER ROADSTER



THE READERS' CLEARING HOUSE



DRUNKEN DRIVERS

Joliet, Ill., Aug. 3—Editor Motor Age—It has become a dangerously popular custom lately among a certain class of "sporty" individuals to rent large touring cars, together with a driver, and run out into the country or to some road-house. There the whole party tarry long enough to become gloriously drunk—no other term properly describes the condition—including the driver; and the return to the city is made not only at the risk of the necks of the occupants of the hired car but endangers motorists and others along the entire route. A short time ago the writer left his car among some dozen others outside a well-known amusement park, and when he returned found that one of these drunken parties had crashed into it, seriously damaging it. No clue was to be had as to who the persons were. The repair men showed a car which had been literally smashed to pieces recently in a similar accident. It is believed that both these instances were occasioned by cars and drivers from a certain well-known south side garage. Is it not time that steps be taken to put a stop to this condition of affairs? Highballs and gasoline do not mix; and public garage owners should employ men who know at least that much.

—James E. Edwards.

FRICTIONAL LOSSES

Iowa City, Ia.—Editor Motor Age—Will you please give through the Readers' Clearing House columns of Motor Age the following information:

1—What is the difference in the frictional losses between a roller and a block chain, each doing the same work?

2—Can a combined chain and belt drive be used, with any degree of satisfaction, from a countershaft to the rear wheels, thereby avoiding the necessity of the differential, there being a great reduction, say seven or eight times, between the countershaft and the rear wheels, that is, the chains to run over small sprockets on the countershaft and act as belts on large-grooved pulleys on the rear wheels?

3—With what success could an auxiliary exhaust be used without the complication of a valve; in other words, the same as a two-cycle motor, except not opening so long lengthwise of the stroke?

4—Where can plate aluminum and also paper fiber, such as used for friction drive, be procured? Is tarred friction paper board better than the plain paper board for friction wheels?—E. D. C.

1—If the frictional surface were equally clean and well lubricated in each case, the difference in frictional loss would be proportional to the relative radius of the end of the block and the pin of the roller, or

about two or two and a half to one. As a matter of fact, the block surface is seldom either so clean or so well lubricated as the pin in the roller, and the difference in friction would probably be two or three times as great as the above.

2—The best way to answer this question will be to make the experiment. It would probably be feasible to transmit very small powers in this manner, but it is doubtful if the device would be practical in what would be considered a vehicle of commercial size and power.

3—With no success at all, as the burnt gases in the exhaust passages would be sucked back into the cylinder when running throttled.

4—For aluminum, write the Pittsburg Reduction Co., Pittsburg, Pa., for the name of its nearest dealer. The makers of friction drive vehicles do not as a rule publish the exact nature of the fiber or composition used, and Motor Age is therefore unable to give this information.

FILLING GAS TANKS

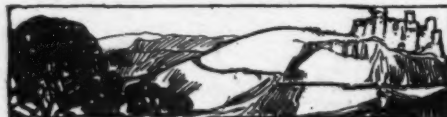
Bridgeport, Conn.—Editor Motor Age—In one of the recent issues of Motor Age there appeared a statement as to the manner in which tire tanks could be recharged from a carbonic tank. I have lost or mislaid the number containing this and would like to know the process. What process is used in brazing cast iron and brass, and how is steel tempered?—C. F. M.

This process was told in the issue of July 4. Motor Age does not know the process used in brazing cast iron; write the Chicago Brazing Co., Chicago. There are hundreds of kinds of steel and many ways of tempering. Everything depends upon the kind of steel desired to be used and the purpose for which it is to be used. If the inquirer will indicate the purpose for which the steel is to be used Motor Age will give directions for tempering.

ABOUT CYLINDER OIL

Mokena, Ill.—Editor Motor Age—Some time ago you told me you thought of trying Invader oil, as the Autocar people had stated they found it free from carbon. What has been the result? My experience with oil has been peculiar, as in every case when I have tried to obtain a better oil than "Standard" gas engine oil I have had a great deal of trouble in short order and have had to cease using special oils and go back to the Standard, which is made for stationary engines and is very cheap.—E. A. Terpening.

What may prove a good oil for one car



may not turn out so well for another. Invader oil has been used by a member of Motor Age staff in an Autocar runabout with satisfaction and very little sooting. It is a light oil and possibly may not suit Mr. Terpening's motor, although he does not state what make he owns. What is known as Standard has not been considered high enough in grade for motor car use, but if it works well and does not foul the cylinders, no harm can come to the motor, although it must be remembered the better the oil the more efficient the lubricating qualities.

ILLINOIS LAW AGAIN

Cedar Rapids, Ia.—Editor Motor Age—I have read of a late motor vehicle law in effect in Illinois which provides for a speed limit in all towns and villages. Is there such a law, and, if so, what are the speeds provided? I also notice that a motorist is required to carry a number on the front and on the rear of a car. Does this apply to non-residents? I am registered in Iowa, where I live; must I do anything or make any change in order to drive into Illinois? I am a subscriber to Motor Age and will appreciate an early answer.—R. A. Romans.

Motor Age has answered questions on the Illinois law until the subject is threadbare. Only a short time ago a digest of the Illinois law was published, so that if Mr. Romans had been a close reader he would have had the Illinois law in a nutshell. The law provides for 10-mile speed in business districts, 15-mile speed in residence districts and 20-mile speed in the country. Non-residents can drive in Illinois if they have their own state license numbers attached to cars.

IMPROVEMENT CLAIMED

Chicago, Ill.—Editor Motor Age—If Motor Age will furnish the money I will have built a motor that is simple and less costly to run than any now on the market. The one in mind is the most economical that can be devised and is suited to anything from a sewing machine to a battleship. This is all open to proof. I, as a mechanic, know my design is unusual, but if all is as I believe it to be it cannot be excelled. It will not cost \$150 to build a test motor, which will establish all I say. I am too poor to try it and am 70 years old. Can Motor Age enlist some kind person to furnish the money? My motor is best for airships. It can be made of aluminum and in 50-horsepower size will not weigh more than 100 pounds. This is the work of 40 years of study. We should have an institution here in Chicago to build test motors for poor inventors. I might add that no fuel is required in my motor.—Charles Rogers.



LEGAL LIGHTS AND SIDE LIGHTS



NO PENALTY IMPOSED

The curious twists and turns that lawmakers sometimes make in trying to make laws to fit cases, and yet fall down, was illustrated in the island of Nantucket a few days ago. The selectmen of the island always have been hostile to motorists and last fall they passed an ordinance forbidding the use of motor cars anywhere on the island. It was generally respected until a few days ago, when W. V. Birney, of New York, who has a summer home there, determined to test the law. He drove his car from Siasconset to Nantucket and on complaint of one of the selectmen he was arrested and brought into court. The case attracted much attention and Bronson Howard, Frank Gilmore and other members of the actors' colony on the island went to the courtroom where there was an exciting hearing. Mr. Birney's attorney was W. A. Thibodeau, of the Massachusetts Automobile Association, of which the defendant was a member. The lawyer made a motion to quash the indictment because the law states that before an ordinance is effective the state highway commission must approve of it. The commission had not approved of the selectmen's ordinance, argued Mr. Thibodeau, so the law was not legal and in force. Judge Moore overruled the motion and found Mr. Birney guilty. Then Mr. Thibodeau showed the judge that while the state authorized the towns to make regulations with the consent of the commission, it had provided no penalty for violating them. Judge Moore then had to withdraw his previous finding and discharge Mr. Birney. This decision will lead to a lot of trouble throughout the state during the summer.

AFTER INTERSTATE LICENSE

The law committee of the New York Automobile Club, formerly the City and Country Motor Club, which consists of M. Grossman, William Grossman and DeWitt Clinton Morrell, is now considering the question of interstate licenses for motor cars, and will report to the directors of the club a bill which it will be the aim of the club to have adopted by different states having as its aim interstate agreement by which motor cars registered in one state may be licensed in other states for a short length of time without the payment of extra fees to the authorities of the state through which the tourist is passing. One of the great objections to ordinary long-distance touring is that a procession of tourists through a number of states is a succession of changes of number plates and the payment of fees to different municipal and state authorities for the privileges of the road. The New York Automobile Club

hopes it will be able to secure some mitigation of this condition in favor of the users of motor cars. It is probable that an effort will be made to induce other clubs and bodies to aid in fostering this movement. The New York Automobile Club's law committee is also drawing a law which will be introduced in Albany next winter making cases of the violation of speed ordinances misdemeanors instead of felonies, thereby allowing their settlement by magistrates and police justices instead of compelling those arrested to have their cases taken to higher courts of record for adjudication.

TERRY MAKES HIS REPORT

Chairman Charles Thaddeus Terry, of the A. A. A. legislative committee, has submitted his report, in which he tells of the work of the board as follows: "The legislative board has kept in touch, through its chairman, with the legislative situations in the various states, to whose legislatures statutes relating to motor cars or the use of the highways were presented at their last sessions. While the general trend of legislation, as gathered from the data collected by the chairman of the committee, seems to be in the direction of reasonableness and a somewhat larger degree of fairness than heretofore, and to show somewhat of abatement of the unreasoning hostility to the motor car and its use because of their novelty, it is to be regretted that motor legislation is even yet of so diverse and divergent a nature throughout the several states as to indicate an imperative demand for one of two things, to-wit: either the speedy enactment of a federal law covering the field as far as may be, or the enactment throughout the states of a uniform motor state law framed upon the model of the best of the present state laws, with improvements thereon if possible. The board is prosecuting its work along both of these lines and seeking the earnest co-operation of the individual members of the board to those ends. It will be remembered that the board prepared and introduced in congress at its last session a bill providing for the federal registration of motor cars, and that it is the intention of the board to press that bill to passage if possible at the coming session of congress. This board, after an examination of the authorities bearing upon the question of the constitutionality of such a statute, and after satisfying itself of the feasibility and constitutionality of such an act,

drafted this bill, took it to Washington and had it introduced in congress. It was referred by the speaker of the house of representatives to the committee on the judiciary. In reference to a uniform state motor vehicle law, the board asks that a copy of the draft of the uniform state motor vehicle law in its final and approved form be sent to each member with the request that each such member of the board, in case the legislative situation in his state is such as to make it feasible, have the bill introduced into the legislature of his state, and use his energetic efforts to secure its passage and signature by the governor of his state. The limits of such a report as this are too narrow to admit of the recitation of even a digest of the changes in motor statutes throughout the country during the recent sessions of the legislatures. Such a digest may be prepared later and submitted for the use of the members of this association."

PAYING UNDER PROTEST

Massachusetts is going to have trouble over its new motor law. The legislature was in too much of a hurry to pass something that would bring money into the state treasury and the motorists are now angry at the scheme whereby they have to re-register in August and again in January after having paid a previous fee, or three times in less than a year. The Brockton Automobile Club took the matter up at its last meeting. An attorney was consulted and he delivered a brief to the effect that he believed the new law was unconstitutional. As a result the Brockton club voted to ask the Massachusetts State Automobile Association, with which the club is affiliated, to test the law and bear the expense. In speaking of the matter President Hill, of the club, said: "The time has come for decisive action and we will not stand for this new law. The motorists of the state are being aroused and the Worcester club already has started along on similar lines to take action. If the other clubs follow suit there would be an end to this passing of bills every year that handicap a growing industry. We feel that the last legislature was clearly hostile to the motor owners and it is time for us to organize to protect our interests. This tax will bring the state \$100,000 and it is simply a hold-up of motorists." The Brockton club instructed its members that in paying their fee to do so under protest as follows: "This fee is paid under protest, and by paying it I waive no right." The Worcester club instructed its members to do the same and it is believed these examples will be followed by other motorizing organizations throughout the state, so great is the general indignation.



Among the Makers and Dealers



RECENT ADDITIONS TO THE PACKARD PLANT, SHOWN IN LIGHT COLOR

Colt in New York—The Colt Runabout Co., of Yonkers, N. Y., has established a New York branch in the Motor Mart at Broadway and Sixty-second street.

Pope Agency Changed—Something of a stir was created in Philadelphia's trade circles by the announcement last week by the Pope Mfg. Co. that the sale of the Pope-Hartford product for Philadelphia and adjacent territory had been transferred to Titman, Leeds & Co., who already handle the Matheson and Studebaker in the Quaker City. The Pope-Hartford had formerly been represented by the Quaker City Automobile Co.

Now in Sycamore—The Turner Brass Works, of Chicago, have completed their new factory at Sycamore, Ill., and are now occupying it. The main factory building has a floor space of 40,000 square feet with power and heating plants additional. Improved machinery has been installed and their facilities enlarged and greatly improved. They are located on the main line of the Chicago and Great Western railway and the Galena division of the Chicago and Northwestern railway with sidetracks to the factory. All correspondence and orders should be sent to the main office, Sycamore, Ill., the company states.

Engineers Meet—The regular midsummer meeting of the mechanical branch of the Association of Licensed Automobile Manufacturers was held in conjunction with the Society of Automobile Engineers at Buffalo. On Monday the mechanical branch held its meeting at the Buffalo Automobile Club. In the morning several papers on steels, their quality and use, were read by the test committee of the branch and Henry Souther, the A. L. A. M. metallurgical expert. At noon the engineers were the guests of E. R. Thomas at luncheon, given at the new Thomas factory. Magnetos was the subject for the afternoon and evening sessions. A thorough discussion of the construction and practical uses of various magnetos were entered into. On Tuesday the engineers were the guests of the George N. Pierce company at its new factory, after which they were their guests at luncheon at the International ho-

tel, Niagara Falls. Through the courtesy of the Thomas and Pierce companies, who supplied cars, the engineers were taken for a run over into Canada and down the Niagara river to Lewiston and return.

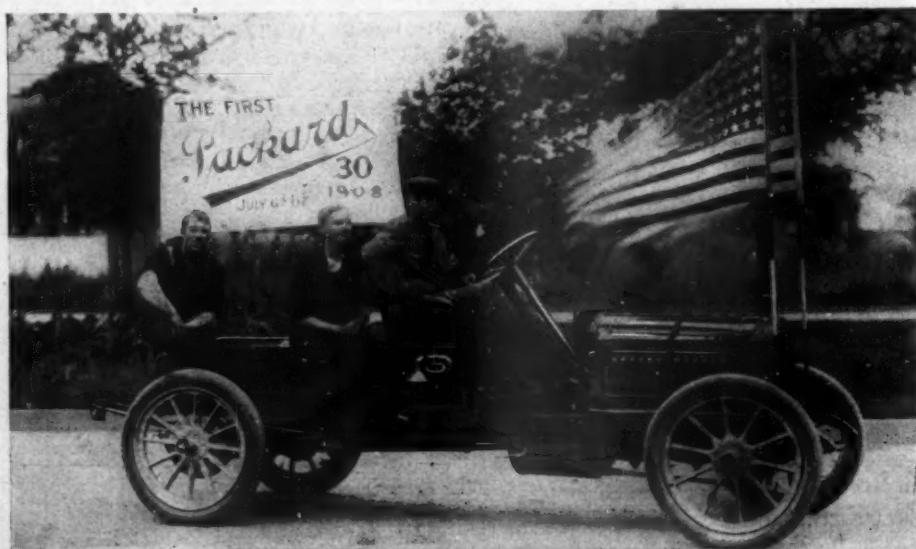
McMaster Changes—E. E. McMaster has associated himself with the Continental Caoutchouc Co. of America as western sales manager. Mr. McMaster has until lately been associated as Detroit manager of the Firestone Tire and Rubber Co. and has been connected with pneumatic tire interests for 10 years. After a short vacation he will assume duties in the middle west with headquarters at Detroit, Mich.

The Packard Factory—A photograph gives an idea of the Packard factory as it now looks. As shown in the picture portions of it are in outline only. These portions represent the additions which are now very nearly completed. The additions contain exactly 160,000 square feet, or more than one and a half times the floor space of the original Detroit factory built in 1902. This 160,000 feet brings the total floor space to an even 435,000 square feet, or exactly 10 acres, which it is claimed makes the Packard factory the largest motor car plant in the world. "To anyone who has not visited the home of the Packard, this immense space may seem absurd, when the output is only 1,500 cars, and

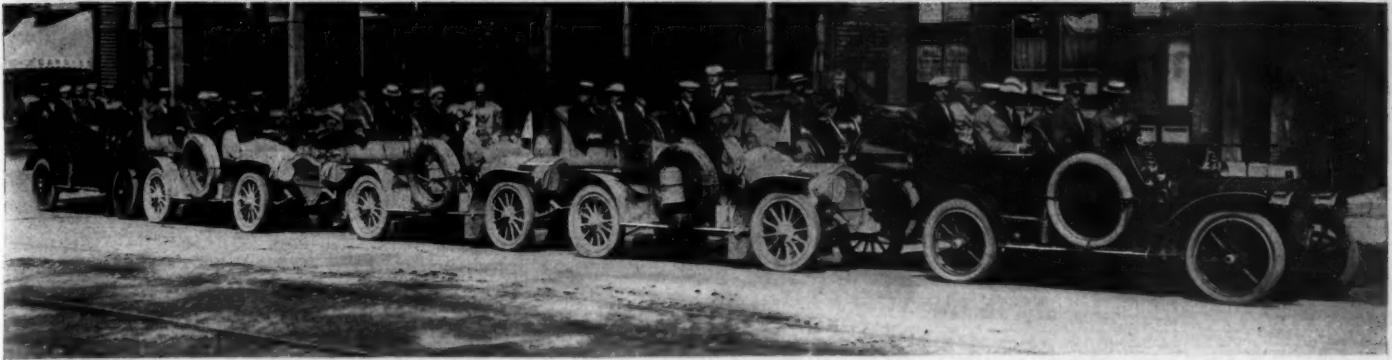
only one model at that. Fifteen hundred cars could be turned out without the additional 160,000 feet, but they could not be Packard cars," says one of the company's officials.

Working on '08 Goods—Nordyke & Marmon, of Indianapolis, who manufacture the Marmon, have begun making the first lot of fifty of their 1908 models. The new models will include a six-cylinder with a longer wheel base than the 1907 car and there will be a noticeable improvement in the general details of construction. It is probable none of the new cars will be shown in public before fall.

Franklin Salesmen Confer—The annual conference of the salesmen of the H. H. Franklin Mfg. Co. was held in Syracuse recently. Those in attendance besides the factory officers and heads of departments were: H. J. Banta, Springfield, Mass.; M. C. Warwick, Syracuse; W. E. Brearly, Pittsburg; L. E. Hoffman, New York; George E. Messmer, Syracuse; George Ostendorf, Buffalo; A. D. Caldwell, Toledo; A. B. Hawley, Jersey City; J. W. Ansley, Syracuse; C. E. Wheeler, branch manager, Boston; F. L. Thomas, branch manager, Chicago. During the session addresses were made by officials of the company and in addition there was a pleasant run to Skaneateles lake, where a dinner was



FIRST 1908 PACKARD DOES A LITTLE CELEBRATING



ENGINEERS OF THE A. L. A. M. OUT FOR A RIDE IN THOMAS CARS

given, the object of the trip being to give the salesmen an opportunity to observe the new models of the Franklin under actual road conditions.

Bayliss Is Sales Manager—James Bayliss, formerly with the Elmore, has gone to Mishawaka, Ind., to assume his new duties as sales manager of the Simplex Motor Car Co., maker of the American Simplex.

Triumph Motor Car Co. Sold—The Bendix company, Chicago, recently organized and capitalized for \$200,000, last week purchased the factory, machinery and equipment of the Triumph Motor Car Co., Cragin Station, Chicago, and has already taken possession of the plant. The executive offices as well as manufacturing departments of the Bendix company are now established at the new location. This new factory has a capacity of over 1,000 complete cars a year. At a recent meeting of the board of directors of the Bendix company, the following officers were elected and appointed for the ensuing year: Vincent Bendix, president and treasurer; Joseph Hagenbuck, vice-president; H. Clay Calhoun, secretary; O. M. De Launty, superintendent; L. P. Sittig, engineer and designer; Fred Patterson, purchasing agent. The Bendix company is manufacturing a complete line of high wheel cars. President Bendix has had long and extensive experience in the man-

ufacture and sale of motor cars of the buggy type, having been connected with the Holsman Automobile Co. Superintendent O. M. De Launty also was with the Holsman company in the same capacity, and was previously connected with the manufacturing departments of other large motor car factories. Shipments of the 1908 models will commence September 1. With the new factory facilities, the company states it has arranged to make its output about 1,200 cars for 1908.

Strout Joins Apperson—George H. Strout, whose resignation as sales manager of the Electric Vehicle Co., of Hartford, Conn., became effective on August 1, has arranged to join the Apperson Brothers Automobile Co., of Kokomo, Ind., on August 15. The Apperson company has created for Mr. Strout the position of sales manager. He will have charge of the selling of the entire factory product, and will have supervision of the company's various branch houses, as well as of the advertising, parts order and repair departments. Mr. Strout will make his headquarters in Kokomo. In the past it has been the policy of the Apperson company to build a comparatively small quantity of high-grade cars and to market them almost exclusively through its own branch houses. For 1908 the company plans to materially increase its output, and in addi-

tion to continuing the construction of its Jackrabbit and touring cars, it will place upon the market an entirely new model. The company proposes to open up a considerable amount of territory in which the Apperson company never before has undertaken to operate.

Spalding Takes Agency—A. G. Spalding & Brothers, of New York, are to establish a branch in Philadelphia for handling the Stevens-Duryea in the Quaker capital, supplanting the Eastern Automobile Co., the former agent.

Additions to A. M. C. M. A.—Two more companies have been elected to membership in the American Motor Car Manufacturers' Association, making a total of forty-six builders of motor cars in that organization. The new concerns admitted are the Chadwick Engineering Works, of Philadelphia, and the Pullman Motor Car Co., of Chicago. The association has taken about 85 per cent of the main floor space of the Grand Central palace show, which will be allotted to members by a drawing the latter part of August.

New York Branch for Franklin—The H. H. Franklin Mfg. Co., of Syracuse, will establish and run a branch of its own in New York. The show room formerly occupied by the Aerocar branch at Broadway and Seventy-third street has been leased. The Franklin has been handled in New York for the past 2 years by Wyckoff, Church & Partridge. It is said Mr. Franklin and Mr. Wyckoff could not come to a satisfactory agreement for a continuation of the agency. The W. C. P. concern will hereafter devote itself mainly to marketing the Stearns.

Packard '08 First Car—A photograph shows the first Packard Thirty 1908 car in test. By the first car is meant the first one to go through the factory in the regular manner. The four experimental cars, which have been on the road since January are not counted in the regular output. The factory is in full swing now with its 1908 output. The photograph was taken July 6. On June 1 the Packard company photographed the last 1907 car. "This means that but 36 days elapsed between the completion of the '07 output and the first regular car of the '08 output," says a Packard official.



GROUP OF FRANKLIN SALES AGENTS AFTER CONFERENCE

THE REALM OF THE COMMERCIAL CAR

PHILADELPHIANS are now reveling in the joys of their first motor car bus line. The Auto Transit Co., which has been making a plucky fight against powerful but invisible forces in the local councils, finally won out about a fortnight ago, and within a few days began operating twelve electric buses on a route extending from Broad and Spruce to Fairmount park by way of Broad and Diamond streets. The company was not quite prepared for the opening, having intended to begin operations with at least twenty-five vehicles, but its immense garage and charging plant at the western terminus of the new line was not sufficiently completed to take care of that number of vehicles. The buses are now being run under a 7-minute headway, but within a week or two the company expects to be in a position to run its vehicles every 3 minutes.

To say that the Quaker City public have taken kindly to the innovation would be putting it mildly. They are actually reveling in the novelty, and the capacity of the buses is taxed even at the midday hour, when travel would naturally be supposed to slacken somewhat. The company's rule of "no-seat-no-fare" is being observed to the letter, and when the thirty-five seats in the bus are all occupied no other passengers are taken up. The straight 5-cent fare is a moderate fee for the character of the service rendered, and up to date the vehicles run close to schedule. When fully equipped and running on a 3-minute headway the line will prove a godsend to the people of the northwestern section of the city, who have been compelled to suffer many inconveniences in the morning and evening owing to the poor service offered by the local traction company.

The vehicles are double-deckers, with access to the upper deck from the rear platform, as is the case with the London buses. Indeed, the Philadelphia vehicles are patterned very closely after those in the world's metropolis, and their rather gaudy blue-and-gold coloring gives the staid old Quaker City quite a metropolitan



PHILADELPHIA HAS STARTED ITS OLD LONDON MOTOR BUSES

aspect. The buses were built on the Imperial electric vehicle patents by the Commercial Truck Co. of America, and are of the four-motor, four-wheel drive pattern, each motor being of 2½-horsepower. Twin solid rubber tires are used on all four wheels, and there is very little jar, and that only at points where tracks on cross streets are set too low. The route throughout is over asphalted streets, and through the finest residential section of the city proper.

RENARD DEMONSTRATION

On these pages are four illustrations showing the trackless Renard motor train demonstrating for the War Department at Aldershot, England, on February 18, 19, and 20, 1907. In the issue of March 14, 1907, Motor Age described in detail the Renard train, mentioning many of its performances and dealing with its adaptability for certain classes of road hauling, and on this occasion will refer only to its military demonstration work at Aldershot. The tests began on a Monday morning and continued until Wednesday afternoon. On

Monday the weather was cold and gloomy; on Tuesday morning it was brighter, but at 3 o'clock a heavy rain fell, accompanied by a high wind, which continued into the night, and on Wednesday the weather, although freezing cold, was bright. Because of these weather variations practically all seasons of the year were represented—rain, snow, hail, frost and warm weather. The roads on which the tests were made represented such varying conditions as unmade roads through fields, roads in the state of repair, muddy roads, slushy roads and gravel and sand highways. The route adopted constituted a severe test of the steering mechanism and hill-climbing qualifications of the Renard train, besides permitting the behavior of the train on various kinds of road surfaces to be tested. The changeable character of the weather allowed of fairly comprehensive tests of wheel adhesion and speed qualifications of the system to be measured. The train with its paying load was weighed before the start of the maneuvers and once each day while the demonstrations continued.



RENARD TRAIN DEMONSTRATING AT ALDERSHOT, ENGLAND, OVER MADE AND UNMADE ROADS

PHILADELPHIA'S DOUBLE-DECK BUSES



PHILADELPHIA ELECTRIC BUS PATTERNED AFTER LONDON STYLES

During this demonstration the gross weight of the train, including distributed bags of sand, spare engine parts and passengers, was 19 tons, 39 pounds. The weight of the train was 11 tons, 1,365 pounds. The weight of the upper bodies of the carriages and vans was 2 tons, 1,442 pounds, which left a net weight of the train, including the floors of the carriages and vans, 9 tons, 14 pounds. The useful load carried, that is, the weight of the bags of sand, spare parts and passengers, was 7 tons, 814 pounds. The weight of the upper bodies of the carriages and vans not required for the transportation of goods was 2 tons, 1,442 pounds, making a weight of useful load or paying load of 10 tons. This paying load was equally distributed over the axles of the coaches, the gross weight on each pair of wheels equaling 1 ton, 1,680 pounds, as against 10 tons, as carried on the driving axle of a 15-ton traction engine.

During the test the full power speed possibilities of the train were not drawn upon, but the speed noted was as follows: On more or less dry and fairly level road surface, 10 miles per hour; on fairly level

road surfaces undergoing repairs, 5 to 6 miles per hour; on fairly level road surfaces with sandy or unmade surface, 4 miles per hour. The train mounted ordinary gradients or hills easily when on the slow-speed gear, the speed on good and dry roads never falling below 6 and 7 miles per hour. At the hill test at Aldershot, 1 1-10 miles in length, with an average gradient from top to bottom of 1 in 18.3, including several steep portions of 1 in 10, the speed averaged 2.443 miles per hour. The average speed of the train in the 35-mile run from London to Aldershot was 5.42 miles per hour, and on the return trip from Aldershot to London 6.1 miles per hour.

In descending hills faster speeds were possible. In taking a 1 in 20 to a 1 in 12 grade $13\frac{1}{2}$ miles per hour were made. It was found by the stop trials while descending the test hill at Aldershot that the mechanical principle of the power transmission provides a perfect braking system.

During the test the train ran along many short curves and while maneuvering on the sand plains at Aldershot traveled in a complete circle of 17 feet, 6 inches radius.

When reversing or backing up the train traveled in a circle with a radius of 18 feet. In turning around sharp street corners at a speed of 4 miles per hour the divergence of the wheels of the last van was not more than 2 inches from that of the front van. So far this performance was considered quite remarkable.

Although the four-cylinder motor used in the locomotor during the tests is intended for propelling a passenger and light merchandise train and is therefore much lighter than the exigencies of the war office demand, it must be said that the train acted remarkably well throughout the tests, some of which were exceedingly severe. In one particular part of the tests the train sank into the sand so that the wheels were buried up to one-third of their diameter, yet all the driving wheels continued in rapid motion and the train moved steadily onward.

During the tests the fuel used was standard gasoline, as used in all motor buses, having a specific gravity of 72 and costing 14 cents a gallon. The consumption of it per train mile was .914, or practically 1 gallon per mile. Thirty-two and one-half gallons were used in the 35-mile run from London to Aldershot and 31 gallons on the return journey.

In general, the train started rapidly and with commendable certainty except on two occasions, when the motor got badly chilled, but as soon as once warm ran well. Throughout the test the train was left out each night in the rain and cold, which undoubtedly caused some of the trouble in the two cases of slow starting. In summing up their reports Messrs. R. F. Thorp and B. H. Thwaite, engineers in the employ of the war office, declared that the claims of great flexibility, steering and braking control both for forward and backward movement, the capabilities of ascending exceptionally steep grades, overcoming obstacles on the roads, the control of speed, the mastery over braking, the lightness of the road wheels on the roads, the steadiness in running and the attainment of high road speeds were all proved from time to time throughout the test.



RENARD TRAIN IN ITS 3-DAY DEMONSTRATION FOR THE WAR DEPARTMENT, ALDERSHOT, ENG.



FROM THE FOUR WINDS



Buffalo May Tax Cars—It is reported that the Buffalo city authorities are planning to impose a tax on motor cars, which will be regarded as personal property. The action of the Buffalo assessors in the matter is awaited with much interest.

Good Work Planned—Members of the Automobile Club of Schenectady, N. Y., are making plans for a motor car trip for the inmates of both the children's home and the day nursery in that city. The members will also erect signs in the vicinity of Schenectady that will be of great value in marking the way for motorists who are not familiar with that part of the country.

Money Counts—While in France people are looking askance at proposals for an autodrome, they are nevertheless watching the experiment in England with the greatest of interest. If the financial result is good there is sure to be a similar venture floated in Paris. Meanwhile the German emperor has appointed a committee to plan an autodrome for Germany. Strangely enough, this will not be very far from the French frontier.

Challenge Accepted—H. B. Stillman, vice-president of the West-Stillman Motor Car Co., of Philadelphia, who withdrew his Pennsylvania car from the recent Reading, Pa., races, owing to a squabble with one of the officials, challenged the representatives of the Pullman and Wayne cars, which won in the events in which the Pennsylvania had been entered. Both accepted, and the race, which will be held open for any other possible entrants, will be decided at Reading on August 24.

Tables Turned—Buffalo motorists, who have observed how strict has been the law governing owners of motor cars and how lax has been the observance of the law regarding other vehicles, now feel that the tables are being turned. This is because Chief of Police Regan of Buffalo has issued an order that henceforth the rules making compulsory the carrying of lights on motor cars at night must now cover the case of horse-drawn vehicles. For years such a rule has never been enforced in Buffalo.

After Accurate Scoring—A. R. Pardington, the acting chairman of the racing board of the A. A. A., has devised a new method of scoring for 24-hour races. It is based on a device used in telephone stations for counting and recording the number of calls on individual lines. Of course a device used for this service must be of proven accuracy and reliability and it is for this reason that Mr. Pardington believes the scoring will be so correct that there cannot possibly be any question raised as to its exactness. Mr. Pardington,

before assuming the managership of the Long Island Motor Parkway was an official of the New York and New Jersey Telephone Co. and is therefore thoroughly conversant with all devices used in telephone work.

Good Driving by Woman—Miss Edith Armstrong, of Albany, with a Franklin touring car made a clean score in the third annual tour of the Albany Automobile Club last week, going from Albany to Atlantic City and return, a distance of 700 miles. Miss Armstrong ran the car unassisted and was the first woman member of the club to attempt so long a journey.

Another Set-Back for Horse—One of the last of the old horse-drawn hack lines in Indiana promises to be substituted within a short time by more up-to-date motor sightseeing cars. The route lies between Greensburg and Clarksburg, between which there is neither steam nor electric railroad connection. The route is about 12 miles long and business men of Greensburg are discussing forming a company to purchase the cars needed.

Car Fired On—One of the most dastardly attacks ever made on a motoring party in Indiana has just been reported to the authorities at Bedford. While Former State Senator T. J. Brooks, accompanied by Mrs. D. Y. Johnson and Miss Stone, a trained nurse, were riding near Heltonville, the car was fired on from ambush. The curtains of the top were literally punctured with shot and the women were almost frightened into hysterics. The cause for the attack or the identity of the vandals is unknown.

New Ideas in Teaching—The motor school conducted by the West Side Young Men's Christian Association, New York city, under the general supervision of an advisory committee composed of prominent members of the Automobile Club of America, will open for the season on September 4. The school will this year offer a physical examination to such of its students as wish to take it, with the view of issuing medical certificates to those who pass. Individual instruction in road work will be a feature of the school this year.

Canada Waking Up—The government road authorities in Washington, D. C., have been advised that a steadily increasing interest has been shown throughout the Canadian province of Ontario, during the past year, in the question of road improvement. This is producing systematized management, which in turn results in better roads. Statute labor is giving place to business methods. Townships are putting their road work on a cash basis, centralizing the supervision under one to four commissioners, using labor-saving ma-

chinery, and are in many ways seeking greater permanence and durability for the highways. The total outlay on country roads made in Ontario during the 10 years, 1896-1905, represents a value of \$21,000,000.

Mayor Finds Car Useful—The value of a motor car was admirably illustrated during the old home week celebration in Boston last week, when Mayor Fitzgerald was forced to attend from six to a dozen receptions in widely separated parts of the Hub each day. He owns a big National car and in this he was seen whirling about morning, noon and night, sometimes changing his collars and coats to fit the occasion as the car rolled along.

Ride No Novelty for Him—At the Brae Burn Country Club, near Boston, is one of the finest golf courses in the country. The grass is kept trimmed neatly and to do this a small motor grass cutter is used. The man who drives the mower is kept busy, and the other night when he was walking home after his day's labor one of the members who was passing along in a motor car seeing the man invited him to take a ride. "Not much," he replied. "I have 8 hours of riding on that old mower every day and a walk feels good after it."

Calls on the Motor—Complaints have frequently been made of the high rates charged by English railway companies on merchandise from the interior manufacturing districts, and an effort is now being made to overcome this difficulty in the Staffordshire pottery districts. An agreement has been entered into with a motor delivery company, of London, to establish a regular motor wagon service from the potteries in Liverpool, by which a substantial reduction in the rate charged will be secured. It is intended to extend the motor service to Manchester, Birmingham, and other important trade centers.

Morris' Fireproof Garage—Dave Hennen Morris, former president of the Automobile Club of America, has completed upon his estate in Westchester county, New York, a garage in which the danger due to the presence of gasoline vapor has been removed by constructing the entire building of unburnable hollow tile. Mr. Morris' new garage provides ample space for two large cars. In addition to the main room on the first floor a small shop for making repairs and a furnace room for warming the building in winter are provided. For the chauffeur, a comfortable apartment is provided on the second floor, including two bedrooms, sitting room, kitchen and bathroom. Stairs leading to the chauffeur's apartment are built on the outside to avoid any openings in the fireproof ceiling of the

first floor. If gasoline should ignite the fire could not spread, for the floor is of concrete and the walls are of unburnable terra cotta blocks.

Labor Day Meet Planned—The race committee of the Bay State Automobile Association intends to run another series of races at Readville on Labor day.

More Good Roads—Forty miles of good roads are to be built in the vicinity of Buffalo. New York State Engineer Skene has announced that bids for the construction of these improved highways will be received by him about September 2. Other roads will be improved and the cost will be about \$5,000,000.

Chauffeurs Have an Organ—The American Chauffeur, an illustrated monthly which is the official organ of the Professional Chauffeur's Club of America has been issued at New York. The first edition, dated August, is a well-printed and interesting number which gives evidence of careful editing and should be of interest to motorists generally.

Experience Meeting Billed—In connection with the show of the Automobile Club of America and the American Motor Car Manufacturers' Association, to be held at the Grand Central palace, during the week following October 24, the A. A. A. will have a big convention at which the papers will be read and discussions held on such practical motor topics as legislation, good roads and touring.

Collects His Toll—Harry Elder, keeper of the Charles street extended tollgate, near Baltimore, has adopted a novel scheme to compel motorists to pay toll. He has a large lantern of sufficient candle-power to overcome the light of the combined lanterns on motor cars. When he stands in the middle of the road and aims the lantern at an approaching car all the space behind him appears to the driver to be in total darkness, which even the car's lamps cannot penetrate. With the motorists it is a case of plunging ahead into darkness

or stopping and paying. Up to date none has tried that. The lantern is fitted up with a large reflector that throws the light out at an angle of 160 degrees.

Franklin on a Journey—H. H. Franklin, president of the H. H. Franklin Mfg. Co., of Syracuse, N. Y., left August 1 for a 3,000-mile tour through New York, New Jersey, New England and Canada in a 1908 six-cylinder Franklin. He will return about September 5.

Levy on Long Trip—D. E. Levy, a New York broker, has just completed a round trip to Chicago in a Matheson. He covered the 2,300 miles in 20 days, journeying from New York to Chicago by way of Cleveland, whence he followed the route taken by the A. A. A. tourists.

Buffalo Appeals—An appeal is to be taken by the city of Buffalo from the decision of Judge Hodson, who holds that the Buffalo ordinance requiring the payment of an annual motor car tax is unconstitutional. The case which Judge Hodson settled was instituted against Dai H. Lewis of the Automobile Club of Buffalo.

Fast Road Work—M. A. Heinmann, of St. Louis, arrived in New York last week, having made the run in an Oldsmobile roadster via Chicago and Buffalo in 110 hours. Last year he made the same run in 90 hours and returned by way of Philadelphia and Pittsburg in 90 hours. He will make his return journey again over the latter route.

More Boulevards—The system of boulevards in Indianapolis promises to be extended still more by the construction of such a roadway on that part of North Meridian street which is now outside of the city limits, north of Thirty-fourth street. Residents living in that territory have petitioned to have it annexed to the city in order that plans for the boulevard may be carried out at once. This would give Indianapolis 6 miles of boulevard on North Meridian street. As the

cost of the boulevard would be assessed entirely against the property owners along the street, the city would not have to bear any of the expense.

Fire Postpones Meet—On account of the fire at the Long Beach hotel, the members' races and games scheduled for last Saturday by the New York Automobile Club were postponed. The club's quarters in the Long Beach hotel were destroyed but the club will at an early date secure other quarters in the vicinity and maintain sea-shore club rooms at this point. It is likely a substitute date will be set for similar games at some of the other club houses either at the Terre-Marine, Staten Island, or the Lake Mahopac clubhouse.

Reo Breaks Record—To lower the old record of 7 hours 45 minutes from Los Angeles to San Diego, Calif., has long been the ambition of many a motorist in southern California, but owing to the rough roads, numerous deep rivers to ford, and to the many other obstacles encountered in the run, the feat was postponed from time to time till July 24. On that day Harris Hanshue, in a 16-horsepower Reo touring car, broke the fastest previous record by 2 hours, making the run in 5 hours 45 minutes. The distance being 140 miles, the run was made at an average speed of 24½ miles per hour.

Another Quaker Meet—The Quaker City Motor Club of Philadelphia is preparing for the biggest race meet in its history, scheduling it for Saturday, August 31. The features will be three events, at 100, 50 and 25 miles, and a race for amateur owners, who must drive their own cars. In the 100-mile event the contest committee already has assurances from the winners of recent century races in different sections of the country that they will be at the tape on the 31st. It is possible that the Quakers will select Belmont oval, the Point Breeze track, owing to its treacherous turns and easily-cut-up surface, being unsuited for fast work.



EXTERIOR

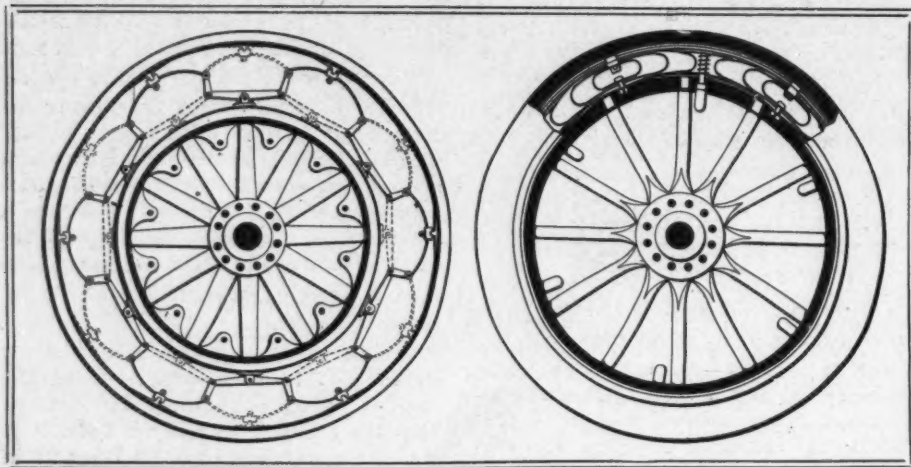


DAVE HENNER MORRIS' GARAGE

INTERIOR



CURRENT MOTOR CAR PATENTS



STEWART'S SPRING RIM

TRABUE'S COMBINATION TIRE

Adjustable Carbureter—No. 860,908, dated July 23; to G. Enrico, Turin, Italy.—The carbureter design referred to in this patent comprises a separate float chamber with a water-jacketed vertical mixing chamber beside it. The normal air opening is at the base of the mixing chamber, the exit to the motor is a horizontal opening midway the height of the mixing chamber and the auxiliary air inlet is at the top of the mixing chamber. Extending throughout the length of this mixing chamber is a vertical sliding barrel throttle, the upper end of which covers and uncovers ports for the admission of auxiliary air, the lower end increases or diminishes the normal air opening and the center portion covers and uncovers two series of ports for admitting the air from that portion of the mixing chamber immediately surrounding the spraying nozzle to that part carrying the connections for the engine piping. The up and down movement of this threefold throttle is automatic and as it moves up and down it carries with it the pointed needle valve which regulates the flow of gasoline through the spraying nozzle. High motor speeds cause this throttle to rise, which movement allows more gasoline to flow, allows more air to enter through the normal air opening, gives a wider opening into the throttle and increases the air entering spaces in the auxiliary air valve.

Concentric Carbureter—No. 860,848, dated July 23; to F. E. Bowers, New Haven, Conn.—In this carbureter the float chamber surrounds the lower portion of the mixing chamber, the float for maintaining the constant level being a ring piece of cork operating on the needle valve through a lever. The feature of the patent lies in the vertical-tube mixing chamber, in the bottom of which is a vacuum chamber, conical in form, extending one-third the height of the mixing chamber and having in its top opening

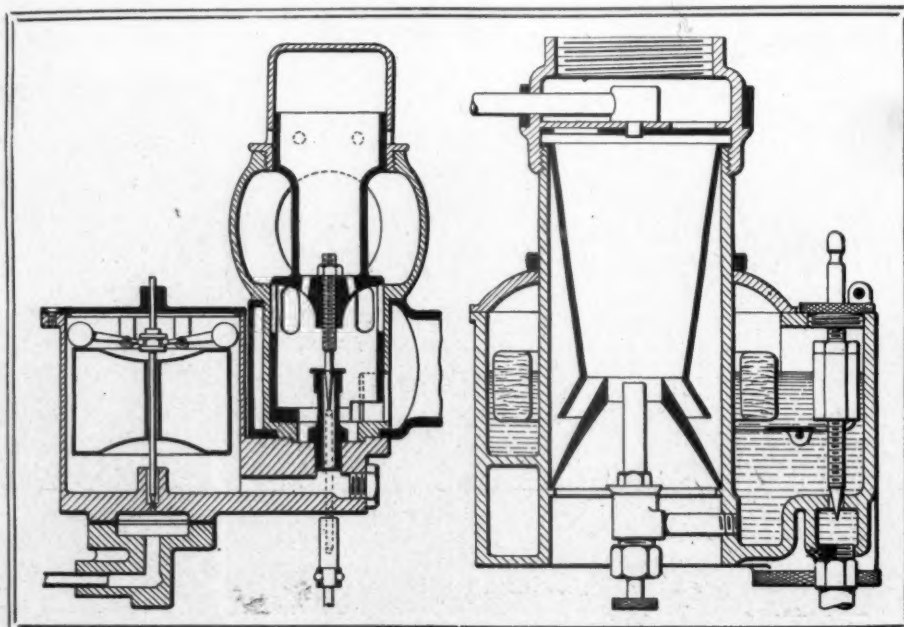
the tip of the stand pipe through which the gasoline enters. In the remaining two-thirds of the mixing chamber is an inverted cone sleeve with a flaring lower end formed concentrically with the top of the vacuum cone in the base of the mixing chamber. Sufficient space is left between the vacuum cone and the flaring bottom of the inverted cone for the normal air entrance. In operation air does not pass by the top of the stand pipe or spraying nozzle but exerts its action on the gasoline in this pipe above the top of the pipe as well as through the vacuum chamber which forms an elastic regulation on the flow of the gasoline. The throttle is a revolving perforated plate carried horizontally in the top of the mixing chamber and which is made to register with perforations in a stationary plate in the mixing chamber.

Spring Rim—No. 861,684, dated July

30; to A. P. Stewart, Jr., Atlanta, Ga.—Comprising this spring wheel are two rims separated by a system of springs, the inner rim carried rigidly on the end of the wheel spokes and the outer rim supported on the inner rim through the medium of the springs. These springs are semi-elliptics fastened at their centers to the inside of the outer rim and made of such length that there is one spring for each spoke of the wheel. The free ends of these springs link together and are in turn linked to short bars pivoted at their centers to lugs on the inner rim.

Spring Wheel—No. 861,623, dated July 30; to W. H. Trabue, Montvale, N. J.—Resilience in this wheel is accomplished by a combination rubber and spring tire. The wheel has secured upon its periphery a metal rim provided with side flanges. Upon this rim is a spring cushion composed of a series of bridging plates upon the sectional rim and having springs located between the middle portions of these plates and the rims. Other springs are located between the end portions of these plates and rims. The outer rubber shoe or casing encloses this entire spring arrangement and has side lips for locking in the flanges.

Anti-Skid Cover—No. 858,710, dated July 2; to W. H. Ellam, Anerley, Eng.—This tire cover is a leather sheet formed in segments which are separately detachable and secured at their ends through the medium of hooks and eyes to the wheel rim. Placed circumferentially on this tire are two link chains, one at each side of the tread and of such distance apart that when running on dry surfaces the tire cover between these chains bears upon the ground while the chains do not.



ENRICO'S ITALIAN CARBURETER

BOWERS' CARBURETER DESIGN